



BIRMINGHAM
UNIVERSITY
CATALOG

1960-61
GRADUATE SCHOOL
CATALOG

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The University welcomes visitors to its campus. Special guided tours may be arranged by communicating with the director of public relations. Members of the administrative staff are available for consultation and interview by appointment.

This catalog is for information only and may be changed by the University Administration in any particular without creating obligations to students or faculty.

Brigham Young University *Bulletin*

Graduate School Issue

1960-61



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Provo, Utah

Table of Contents

Calendar of Events	2
Administration and Faculty	3
General Information	17
Purpose	17
Administration and Organization	17
General Requirements	20
Master's Degree	20
Doctor of Philosophy Degree	24
Doctor of Education Degree	25
Scholarships, Assistantships, and Fellowships	27
Summer Sessions	28
Library Facilities	28
University Fees	29
Student Personnel Services	31
Student Housing	33
List of Courses	36
Accounting	37
Agricultural Economics	38
Agronomy	38
Animal Husbandry	39
Archaeology	40
Art	42
Bacteriology	43
Bible and Modern Scripture	44
Biblical Languages	46
Botany	47
Business Education	49
Business Management	50
Chemistry	52
Civil Engineering Science	55
Economics	56
Educational Administration	57
Educational Philosophy and Programs	60

TABLE OF CONTENTS

Educational Research and Services	60
Electrical Engineering Science	64
English	67
Food and Nutrition	68
Geography	69
Geology	71
Health Education	73
History	74
History and Philosophy of Religion	76
Human Development and Family Relationships	78
Instruction	80
Journalism	83
Languages	84
Library Science	87
Mathematics	88
Mechanical Engineering Science	88
Music	90
Physical Education	94
Physics	96
Political Science	99
Psychology	101
Recreation	105
Religious Education	106
Sociology and Anthropology	108
Speech and Dramatic Arts	111
Zoology and Entomology	113
Index	115

University Calendar

1960-61

Although as accurate as possible at the time of the printing of this catalog, the calendar is subject to change at the discretion of the University administration.

First Semester

September 26, 27 (Monday, Tuesday): Registration for all regular and special students. Students will register in an alphabetical order to be announced. A late fee will be charged all students registering after this date.

September 28 (Wednesday): Class instruction begins.

October 17 (Monday): Last day on which late registration may occur for First Semester, and for dropping and adding classes.

November 18 (Friday): Mid-semester registration for courses available to students on special authorization.

November 24, 25, 26 (Thursday, Friday, Saturday): Thanksgiving recess.

December 22 (Thursday) - January 3 (Tuesday): Christmas Vacation period.

January 16 (Monday) through January 27 (Friday): Registration for Second Semester.

January 30, 31, February 1, 2, 3 (Monday, Tuesday, Wednesday, Thursday, Friday): Final Examination period.

February 3 (Friday): First Semester closes.

Second Semester

February 6 (Monday): Registration for all new students. A late fee will be charged all new students registering after this date.

February 6 (Monday): Class instruction begins.

February 24 (Friday): Last day on which late registration may occur for Second Semester, and for dropping and adding classes.

March 31 (Friday): Mid-semester registration for courses available to students on special authorization.

May 29, 30, 31, June 1, 2 (Monday, Tuesday, Wednesday, Thursday, Friday): Final Examination period.

June 2 (Friday): Baccalaureate Services.

June 3 (Saturday): Commencement.

Summer Session

June 19 (Monday): Registration.

June 20 (Tuesday): First Term begins.

July 21 (Friday): First Term ends.

July 25 (Tuesday): Second Term begins.

August 25 (Friday): Second Term ends. Summer Convocation held.

Administration and Faculty

Board of Trustees of Brigham Young University

DAVID O. McKAY	President
J. REUBEN CLARK, JR.	First Vice-President
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ERNEST L. WILKINSON
CLYDE D. SANDGREN, Secretary

Administrative Officers

President	Ernest L. Wilkinson
Administrative Assistant	John T. Bernhard
Assistant to the President in Charge of University Development	William Noble Waite
Vice-President	William E. Berrett
Vice-President	Earl C. Crockett
Vice-President	Harvey L. Taylor
General Counsel	Clyde D. Sandgren
Dean of the Graduate School	Wesley P. Lloyd

Graduate Council

Representatives of Colleges

Jay V. Beck, College of Biological and Agricultural Sciences. Term expires January 1, 1963.
Robert J. Smith, College of Business. Term expires January 1, 1963.
A. John Clarke, College of Education. Term expires January 1, 1963.
Blaine M. Porter, College of Family Living. Term expires January 1, 1961.
Daniel L. Martino, College of Fine Arts. Term expires January 1, 1962.
Eugene E. Campbell, College of Humanities and Social Sciences. Term expires January 1, 1961.
Keith P. Anderson, College of Physical and Engineering Sciences. Term expires January 1, 1961.
Israel Heaton, College of Physical Education. Term expires January 1, 1961.
Chauncey C. Riddle, College of Religious Instruction. Term expires January 1, 1962.

Members at Large

Mark K. Allen. Term expires January 1, 1963.
Reed H. Bradford. Term expires January 1, 1961.

John H. Gardner. Term expires January 1, 1962.
 Bertrand F. Harrison. Term expires January 1, 1961.
Ex Officio
 Earl C. Crockett, Educational Vice-President.
 H. Tracy Hall, Director of Research.
 Wesley P. Lloyd, Dean, Graduate School; Chairman.

The Faculty of the Graduate School

- George M. Addy** Assistant Professor of History (1957)
 B.A., M.A., Brigham Young University, 1948, 1950; Ph.D., Duke University, 1957.
- Lorna Call Alder** Assistant Professor of Education (1949)
 B.S., Brigham Young University, 1935; M.A., Columbia University, 1940.
- A. Lester Allen** Associate Professor of Zoology (1954)
 B.A., Ph.D., University of California at Los Angeles, 1946, 1951.
- Mark K. Allen** Professor of Psychology (1946)
 B.A., Brigham Young University, 1926; M.A., Ph.D., Stanford University, 1935, 1955.
- Stephen L. Alley** Associate Professor of Educational Philosophy (1956)
 B.S., M.S., University of Utah, 1947, 1951; Ed.D., Harvard University, 1958.
- Dorald M. Allred** Assistant Professor of Zoology and Entomology (1956)
 B.A., M.A., Brigham Young University, 1950, 1951; Ph.D., University of Utah, 1954.
- R. Chase Allred** Associate Professor of Agronomy (1955)
 B.S., Brigham Young University, 1948; M.S., Kansas State College, 1949; Ph.D., University of Nebraska, 1952.
- H. Verlan Andersen** Professor of Accounting (1953)
 B.S., Brigham Young University, 1940; LL.B., Stanford University, 1946; LL.M., Harvard University, 1948; C.P.A., State of Arizona, 1943.
- Floyd M. Anderson** Associate Professor of Human Development
 and Family Relationships (1956)
 B.S., Brigham Young University, 1950; Ed.D., Teachers College, Columbia University, 1956.
- *Keith P. Anderson** Professor of Chemistry (1953)
 B.A., Brigham Young University, 1946; Ph.D., Cornell University, 1950.
- Richard L. Anderson** Assistant Professor of Religion (1955)
 B.A., M.A., Brigham Young University, 1951, 1957; LL.B., Harvard University 1954.
- Vernon L. Anderson** Associate Professor of Modern Languages (1956)
 B.A., M.A., University of Utah, 1948, 1949; Ph.D., Stanford University, 1954.
- Hyrum L. Andrus** Assistant Professor of Religion (1956)
 B.S., Ricks College, 1951; M.S., Brigham Young University, 1952; D.S.S., Syracuse University, 1955.
- J. Roman Andrus** Professor of Art and Education (1943)
 B.S., M.S., Brigham Young University, 1942, 1943; Ed.D., University of Colorado, 1958.
- Hyrum J. Babcock** Assistant Professor of Education (1954)
 B.A., M.A., Ph.D., University of California, 1939, 1940, 1953.
- Ariel S. Ballif** Professor of Sociology (1938)
 B.S., Brigham Young University, 1925; M.A., Ph.D., University of Southern California, 1937, 1945.
- Richard Ballou** Instructor in Music (1951)
 B.A., M.A., Brigham Young University, 1948, 1953.
- Blauer L. Bangerter** Instructor in Physical Education (1953)
 B.A., Brigham Young University, 1951; M.S., University of Utah, 1955.
- J. Dean Barnett** Assistant Professor of Physics (1958)
 B.A., University of Utah, 1954; Ph.D., University of Utah, 1959.
- Owen L. Barnett** Associate Professor of Educational
 Administration (1950)
 B.S., M.S., Brigham Young University, 1923, 1927.
- *Vernon S. Barney** Assistant Professor of Health and Physical
 Education (1953)
 B.S., M.S., Brigham Young University, 1948, 1956; Diploma in Physical Therapy, Children's Hospital Association School of Physical Therapy, University of California at Los Angeles, 1951.
- Howard H. Barron** Assistant Professor of Religion (1953)
 B.S., M.S., Utah State University, 1943, 1950; Ed.D., University of Utah, 1953.
- Davis Bartholomew** Professor of Electrical Engineering (1954)
 B.S., University of Utah, 1928; M.S., University of Minnesota, 1940; P.E.E., University of Utah, 1948.
- J. LaVar Bateman** Associate Professor of Speech (1949)
 B.A., Brigham Young University, 1941; M.S., Ph.D., University of Wisconsin, 1947, 1950.

- Edith Batholomew Bauer** Associate Professor of Education (1945)
B.A., M.A., Brigham Young University, 1930, 1946; Ph.D., University of California (Berkeley), 1956.
- Leland K. Baxter** Professor of Mechanical Engineering (1953)
B.S., University of New Mexico, 1948; M.S., Ph.D., Purdue University, 1952, 1953.
- D Elden Beck** Associate Professor of Zoology and Entomology (1938)
B.A., M.A., Brigham Young University, 1929, 1930; Ph.D., Iowa State College, 1933.
- Jay V. Beck** Professor of Bacteriology (1951)
B.A., M.A., Brigham Young University, 1933, 1936; Ph.D., University of California (Berkeley), 1940.
- R. Dermont Bell** Assistant Professor of Business Education and Office Management (1957)
B.S., M.S., Brigham Young University, 1955, 1956.
- B. West Belnap** Professor of Religious Education (1951)
B.S., Brigham Young University, 1946; M.A., Ed.D., Columbia University, 1950, 1951.
- Marion Bennion** Associate Professor of Food and Nutrition (1952)
B.S., Utah State University, 1947; M.S., Teachers College, Columbia University, 1949; Ph.D., University of Wisconsin, 1956.
- Joseph T. Bentley** Comptroller; Associate Professor of Accounting
B.S., M.S., Brigham Young University, 1928, 1954; C.P.A., State of Utah, 1946.
- John T. Bernhard** Administrative Assistant to the President; Professor of Political Science (1959)
B.S., Utah State University, 1941; M.A., Ph.D., University of California at Los-Angeles, 1949, 1951.
- William E. Berrett** Vice-President; Professor of Religion
B.A., LL.B., University of Utah, 1924, 1933.
- June E. Berry** Librarian (1948)
B.S., Brigham Young University, 1947; M.S., University of Utah, 1952.
- Max J. Berryessa** Assistant Director of Laboratory Schools for Operation; Assistant Professor of Education (1948)
B.S., M.S., Brigham Young University, 1948, 1949; Ed.D., Stanford University, 1959.
- Harold J. Bissell** Professor of Geology (1938)
B.S., Brigham Young University, 1934; M.S., Ph.D., University of Iowa, 1936, 1948.
- Angus U. Blackham** Associate Professor of Chemistry (1952)
B.A., Brigham Young University, 1949; M.A., Ph.D., University of Cincinnati, 1950, 1952.
- Jacob Bos** Special Instructor in Music
Diploma, Royal Conservatory of Music, Hague, Holland, 1921; Former Member of Concertgebouw Orchestra, Amsterdam, Holland.
- Reed H. Bradford** Professor of Sociology (1946)
B.A., Brigham Young University, 1937; M.A., Louisiana State University, 1939; M.A., Ph.D., Harvard University, 1941, 1946.
- Merrill K. Bradshaw** Instructor in Music (1957)
B.A., M.A., Brigham Young University, 1954, 1955; M. Mus., University of Illinois, 1956.
- Marion B. Brady** Assistant Professor of English (1957)
B.A., M.A., Brigham Young University, 1950, 1951.
- Willis H. Brimhall** Instructor in Geology (1956)
B.S., Brigham Young University, 1949; M.S., University of Arizona, 1951.
- *Ralph A. Britsch** Associate Professor of English (1938)
B.A., M.A., Brigham Young University, 1933, 1951.
- H. Smith Broadbent** Professor of Chemistry (1946)
B.S., Brigham Young University, 1942; Ph.D., Iowa State College, 1946.
- Billings Brown** Associate Professor of Chemical Engineering (1953)
B.S., M.S., Ph.D., University of Washington, 1951, 1951, 1953.
- Loren C. Bryner** Professor of Chemistry (1935)
B.S., M.S., Brigham Young University, 1928, 1930; Ph.D., Iowa State College, 1934.
- Kenneth C. Bullock** Professor of Geology (1943)
B.S., M.A., Brigham Young University, 1940, 1942; Ph.D., University of Wisconsin, 1949.
- Percy E. Burrup** Professor of Educational Administration (1952)
B.S., M.S., Utah State University, 1932, 1941; Ed.D., Colorado State College of Education, 1951.
- Alma P. Burton** Dean—Admissions and Records; Professor of Religion (1948)
B.S., Utah State University, 1948; M.S., Brigham Young University, 1950; Ed.D., University of Utah, 1957.
- Jess R. Bushman** Assistant Professor of Geology (1955)
B.A., Brigham Young University, 1949; Ph.D., Princeton University, 1959.
- Eliot A. Butler** Assistant Professor of Chemistry (1956)
B.S., Ph.D., California Institute of Technology, 1952, 1956.

- Edwin J. Butterworth** Assistant Professor of Journalism (1949)
B.A., University of Utah, 1950; M.A., Brigham Young University, 1954.
- Gaylon L. Caldwell** Associate Professor of Political Science (1951)
B.A., Utah State University, 1947; M.A., University of Nebraska, 1948; Ph.D., Stanford University, 1952.
- Sterling G. Callahan** Professor of Education (1953)
B.A., Brigham Young University, 1937; M.A., George Washington University, 1947; Ed.D., University of Virginia, 1953.
- Eugene E. Campbell** Professor of History (1956)
B.A., M.A., University of Utah, 1939, 1940; Ph.D., University of Southern California, 1952.
- Jennie Campbell** Associate Professor of Education (1952)
B.S., Brigham Young University, 1928; M.A., Teachers College, Columbia University, 1937.
- Clawson Y. Cannon, Jr.** Assistant Professor of Music (1949)
B.M., Eastman School of Music, University of Rochester, 1948; Diploma, Konservatorium Zurich, 1953; B.A., M.A., Brigham Young University, 1954, 1955.
- Clawson Y. Cannon, Sr.** Professor of Animal Husbandry (1956)
B.S., Utah State University, 1913; M.S., Ph.D., Iowa State College, 1924, 1927.
- Kenneth L. Cannon** Professor of Human Development and Family Relationships (1956)
B.S., Brigham Young University, 1935; M.S., Ph.D., Iowa State College, 1948, 1954.
- L. Bernice Chapman** Associate Professor of Nursing; Dean, College of Nursing (1954)
Diploma, Community Hospital, Grinnell, Iowa, 1930; B.S., University of Minnesota, 1935; M.A., Columbia University, 1952.
- Arthur O. Chapman** Associate Professor of Zoology (1959)
B.A., Brigham Young University, 1941; M.A., University of Kansas, 1949; Ph.D., University of Nebraska, 1953.
- Thomas E. Cheney** Associate Professor of English (1945)
B.S., Utah State University, 1930; M.A., University of Idaho, 1936.
- Dean C. Christensen** Associate Professor of Education (1957)
B.S., M.S., Utah State University, 1938, 1948; Ed.D., University of Oregon, 1957.
- Earl M. Christensen** Associate Professor of Botany (1949)
B.S., M.S., University of Utah, 1947, 1949; Ph.D., University of Wisconsin, 1954.
- Edward L. Christensen** Professor of Business Education and Office Management (1953)
B.S., M.S., Ph.D., University of Utah, 1938, 1939, 1953.
- James J. Christensen** Assistant Professor of Chemical Engineering (1957)
B.S., University of Utah, 1953, 1956; Ph.D., Carnegie Institute of Technology, 1957.
- Lillian A. Christensen** Assistant Professor of Education (1950)
B.S., University of Utah, 1938; M.S., Brigham Young University, 1957; Ph.D., Western Reserve University, 1958.
- Parley A. Christensen** Professor of English (1927)
B.S., Utah State University, 1914; M.A., Ph.D., Stanford University, 1925, 1927.
- Ross T. Christensen** Assistant Professor of Archaeology (1952)
B.A., M.A., Brigham Young University, 1943, 1947; Ph.D., University of Arizona, 1956.
- John R. Christiansen** Associate Professor of Sociology (1957)
B.S., M.S., Utah State University, 1949, 1952; Ph.D., University of Wisconsin, 1955.
- Bruce B. Clark** Professor of English (1950)
B.A., University of Utah, 1943; M.A., Brigham Young University, 1948; Ph.D., University of Utah, 1951.
- David Leigh Clark** Assistant Professor of Geology (1959)
B.S., M.S., Brigham Young University, 1953, 1954; Ph.D., University of Iowa, 1957.
- Harold Glen Clark** Professor of Education; Dean of Adult Education and Extension Services (1946)
B.S., Brigham Young University, 1928; M.S., University of Southern California, 1934; Ed.D., George Washington University, 1942.
- Herald R. Clark** Professor of Finance and Banking (1913)
B.A., Brigham Young University, 1918; M.B.A., University of Washington, 1924.
- J. Reuben Clark, III** Associate Professor of Modern Languages (1941)
B.A., University of Utah, 1934.
- James R. Clark** Associate Professor of Religion (1938)
B.A., M.A., Brigham Young University, 1936, 1944; Ed.D., Utah State University, 1958.
- Marden J. Clark** Associate Professor of English (1949)
B.A., M.A., Brigham Young University, 1948, 1949; Ph.D., University of Washington, 1957.
- Monroe H. Clark** Associate Professor of Philosophy of Education and Guidance (1945)
B.A., Columbia University, 1923; M.A., Brigham Young University, 1927.

- A. John Clarke** Assistant Dean of the College of Education;
Professor of Educational Administration (1938)
B.S., M.S., Brigham Young University, 1938, 1942; Ed.D., Colorado University, 1950.
- Morris M. Clinger** Assistant Professor of Speech (1936)
B.A., M.A., Brigham Young University, 1932, 1946.
- *Lane A. Compton** Assistant Professor of Physical Science
Education (1953)
B.S., M.S., Ed.D., University of Utah, 1943, 1951, 1955.
- Ivan L. Corbridge** Associate Professor of Economics (1952)
B.A., Utah State University, 1946; M.S., University of Chicago, 1948; Ph.D., Wash-
ington State College, 1952.
- Stephen R. Covey** Assistant Professor of Business Management (1957)
B.S., University of Utah, 1953; M.B.A., Harvard Graduate School of Business Admin-
istration, 1957.
- Marshall R. Craig** Assistant Professor of English (1953)
B.S., Brigham Young University, 1941; M.A., Columbia University, 1947.
- Lars G. Crandall** Assistant Professor of Business Education and
Office Management (1944)
B.S., M.S., Brigham Young University, 1944, 1945.
- John K. Crnkovic** Assistant Director of the Laboratory Schools for
Curriculum and Teaching; Assistant Professor of Education (1957)
B.A., Willamette University, 1930; M.A., University of Michigan, 1940; Ed.D., Arizona
State College, 1956.
- Earl C. Crockett** Vice President; Professor of Economics
B.S., University of Utah, 1927; Ph.D., University of California, 1931.
- Evan M. Croft** Associate Professor of Business Education and
Office Management (1936)
B.S., Brigham Young University, 1929; M.S., University of Southern California,
1940.
- Robert M. Cundick** Assistant Professor of Music (1957)
B.F.A., M.F.A., Ph.D., University of Utah, 1949, 1950, 1955.
- Brandt B. Curtis** Instructor in Music (1955)
B.A., Brigham Young University, 1953; M.M., Indiana University, 1955.
- Delva Daines** Associate Professor of Education (1955)
B.S., M.S., Utah State University, 1940, 1947; Ed.D., State College of Washington,
1956.
- J. Kenneth Davies** Assistant Professor of Economics (1953)
B.S., Marquette University, 1945; M.S., Brigham Young University, 1950; Ph.D.,
University of Southern California, 1959.
- Glenn C. Davis** Instructor in Journalism (1959)
B.S., Brigham Young University, 1955; M.S., University of Illinois, 1957.
- John R. Davis** Assistant Professor of Business Management (1958)
B.S., Brigham Young University, 1941; M.B.A., Stanford Graduate School of Business,
1951.
- Daniel Decker** Assistant Professor of Physics (1958)
B.S., M.S., Brigham Young University, 1953, 1955; Ph.D., University of Illinois, 1958.
- Gerrit de Jong, Jr.** Professor of Modern Languages; Dean Emeritus,
College of Fine Arts (1925)
B.A., M.A., University of Utah, 1920, 1925; Ph.D., Stanford University, 1933.
- Dwight R. Dixon** Assistant Professor of Physics (1959)
B.S., Utah State University, 1942; Ph.D., University of California, 1955.
- David M. Donaldson** Associate Professor of Bacteriology (1955)
B.S., M.S., Ph.D., University of Utah, 1950, 1952, 1954.
- G. Byron Done** Professor of Religion (1956)
B.A., University of Utah, 1928; M.A., Ph.D., University of Southern California, 1937,
1939.
- *Lester N. Downing** Associate Professor of Personnel and Guidance (1954)
B.S., M.S., Utah State University, 1947, 1949; Ed.D., Colorado State College of
Education, 1951.
- Roy W. Doxey** Assistant Professor of Religion (1948)
B.A., M.A., George Washington University, 1938, 1940.
- Willard B. Doxey** Assistant Professor of Economics (1956)
B.S., M.S., University of Utah, 1937, 1947; Ph.D., University of California
(Berkeley), 1956.
- Claude B. Duerden** Assistant Professor of Health Education (1958)
B.S., University of Utah, 1950; M.P.H., University of California (Berkeley), 1954.
- Keith E. Duke** Assistant Professor of Geography (1956)
B.A., University of California at Los Angeles, 1947; Docteur de l'Univ., Université
de Bordeaux, France, 1950.
- William G. Dyer** Associate Professor of Sociology (1955)
B.A., M.A., Brigham Young University, 1950, 1952; Ph.D., University of Wisconsin,
1955.

- *Don L. Earl** Associate Professor of Music (1955)
B.A., M.A., Brigham Young University, 1940, 1947; Ph.D., Indiana University, 1952.
- E. John Eastmond** Professor of Physics (1951)
B.A., Brigham Young University, 1937; Ph.D., University of California (Berkeley), 1943.
- Jefferson N. Eastmond** Associate Professor of Educational Administration (1956)
B.S., M.S., Brigham Young University, 1947, 1948; Ed.D., Teachers College, Columbia University, 1950.
- *Blaine E. Edlefsen** Instructor in Music (1953)
B.A., Brigham Young University, 1952; M. Mus., Eastern School of Music, University of Rochester, 1953.
- Robert L. Egbert** Professor of Educational Psychology (1955)
B.S., M.S., Utah State University, 1947, 1948; Ph.D., Cornell University, 1949.
- Richard Grant Ellsworth** Assistant Professor of English (1958)
B.A., M.A., Brigham Young University, 1951, 1952; Ph.D., University of Maryland, 1958.
- LaMar T. Empey** Associate Professor of Sociology (1955)
B.S., M.S., Brigham Young University, 1951, 1952; Ph.D., State College of Washington, 1955.
- *Dean B. Farnsworth** Professor of English (1953)
B.A., M.A., University of Utah, 1946, 1947; Ph.D., University of California (Berkeley), 1950.
- Raymond B. Farnsworth** Professor of Agronomy (1946)
B.S., Brigham Young University, 1937; M.S., Massachusetts State College, 1938; Ph.D., Ohio State University, 1941.
- *M. Charles Faux** Assistant Professor of Business Management (1957)
B.S., University of Utah, 1952; M.B.A., Harvard Graduate School of Business Administration, 1954.
- Lawrence Fearnley** Assistant Professor of Mathematics (1957)
B.S., London University, 1953; Ph.D., University of Utah, 1959.
- *R. Kent Fielding** Assistant Professor of History (1952)
B.S., M.S., Brigham Young University, 1950, 1952; Ph.D., Indiana University, 1957.
- D. Allen Firmage** Associate Professor of Engineering (1955)
B.S.C.E., University of Utah, 1940; M.S., Massachusetts Institute of Technology, 1941.
- Albert L. Fisher** Associate Professor of Geography (1954)
B.S., University of Utah, 1951; M.A., Ph.D., Johns Hopkins University, 1952, 1954.
- Chad J. Flake** Instructor in Library Science (1953)
B.A., Brigham Young University, 1953; M.A., University of Denver, 1955.
- *Royce P. Flandro** Assistant Professor of Education (1953)
B.S., M.S., University of Utah, 1948, 1950; Ed.D., University of Indiana, 1957.
- Harvey Fletcher** Professor of Physics (1952)
B.S., Brigham Young University, 1907; Ph.D., Chicago University, 1911; hon. Sc.D., Columbia University, 1935; hon. Sc.D., Kenyon College, 1942; hon. Sc.D., Stevens Institute of Technology, 1942; hon. Sc.D., Case School of Applied Sciences, 1942; hon. Sc.D., University of Utah, 1944; hon. Sc.D., Brigham Young University, 1954.
- Carl Fuerstner** Special Instructor in Piano (1951)
Diploma, State Academy of Music, Cologne, Germany, 1934.
- Dean K. Fuhrman** Professor of Engineering (1954)
B.S., M.S., Utah State University, 1941, 1950; Ph.D., University of Wisconsin, 1952.
- B. Delworth Gardner** Assistant Professor of Economics (1959)
B.S., M.S., University of Wyoming, 1952, 1954; Ph.D., University of Chicago, 1960.
- John H. Gardner** Professor of Physics (1949)
B.S., Utah State University, 1943; M.A., Ph.D., Harvard University, 1947, 1950.
- Crawford Gates** Associate Professor of Music (1948)
B.A., San Jose State College, 1944; M.A., Brigham Young University, 1948; Ph.D., Eastman School of Music, University of Rochester, 1954.
- David D. Geddes** Assistant Professor of Physical Education and Health (1952)
B.S., M.S., Brigham Young University, 1950, 1952; Ph.D., University of Southern California, 1959.
- M. Carl Gibson** Assistant Professor of Modern and Classical Languages (1949)
B.A., M.A., Brigham Young University, 1947, 1949.
- Preston R. Gledhill** Associate Professor of Speech (1947)
Degree Supérieur, La Sorbonne, 1938; B.A., Brigham Young University, 1939; M.A., Louisiana State University, 1940; Ph.D., University of Wisconsin, 1951.
- J. Rex Goates** Professor of Chemistry (1947)
B.S., Brigham Young University, 1942; Ph.D., University of Wisconsin, 1947.
- Lue S. Groesbeck** Instructor in Music (1957)
B.A., Brigham Young University, 1948.
- Stewart L. Grow** Professor of History and Political Science (1947)
B.S., M.S., Brigham Young University, 1935, 1948; Ph.D., University of Utah, 1954.

- Clark J. Gubler** Associate Professor of Chemistry (1958)
B.A., Brigham Young University, 1939; M.A., University of Southern California, 1941;
Ph.D., University of California, 1945. Established Investigator of the American
Heart Association, 1960.
- *Norman Gulbrandsen** Assistant Professor of Music (1951)
B.S., University of Utah, 1943; M.Mus., Northwestern University, 1948.
- Richard L. Gunn** Associate Professor of Art and Education (1948)
B.S., M.S., Brigham Young University, 1947, 1950; Ed.D., Stanford University, 1955.
- LeRoy R. Hafen** Professor of History (1954)
B.A., Brigham Young University, 1916; M.A., University of Utah, 1919; Ph.D.,
University of California, 1924; Litt.D., University of Colorado, 1935.
- Richard W. Hales** Associate Professor of Physics (1952)
B.S., Iowa State College, 1946; Ph.D., University of California, 1952.
- Wayne B. Hales** Professor of Physics and Mathematics; Dean,
General College (1930)
B.A., Brigham Young University, 1916; M.A., University of Utah, 1922; Ph.D.,
California Institute of Technology, 1926.
- H. Tracy Hall** Professor of Chemistry, Director of the
Research Division (1955)
B.S., M.S., Ph.D., University of Utah, 1942, 1943, 1948.
- Merrill J. Hallam** Associate Professor of Agronomy; Acting Dean,
College of Biological and Agricultural Sciences (1952)
B.A., Brigham Young University, 1950; Ph.D., Iowa State College, 1952.
- *John R. Halliday** Professor of Music (1936)
B.A., M.A., Brigham Young University, 1935, 1936; Ph.D., Eastman School of Music,
University of Rochester, 1941.
- *George H. Hansen** Professor of Geology and Geography (1927)
B.S., Utah State University, 1918; M.S., Ph.D., George Washington University,
1925, 1927.
- Harold I. Hansen** Professor of Speech (1952)
B.S., Utah State University, 1937; M.A., Ph.D., State University of Iowa, 1940,
1949.
- Wilford N. Hansen** Assistant Professor of Chemistry (1958)
B.S., Brigham Young University, 1950; Ph.D., Iowa State College, 1956.
- Kenneth R. Hardy** Associate Professor of Psychology (1954)
B.A., M.A., University of Utah, 1948, 1949; Ph.D., University of Michigan, 1954.
- James M. Harris** Assistant Professor of Educational Psychology (1955)
B.S., M.S., Utah State University, 1952, 1953; Ph.D., Cornell University, 1955.
- Bertrand F. Harrison** Professor of Botany (1929)
B.S., M.S., Brigham Young University, 1930, 1931; Ph.D., University of Chicago,
1937.
- Charles J. Hart** Professor of Recreation and of Physical and
Health Education; Assistant to the Dean of the College
of Physical Education (1925)
B.S., Utah State University, 1922; M.A., Ed.D., New York University, 1932, 1945.
- Edward L. Hart** Professor of English (1952)
B.S., University of Utah, 1939; M.A., University of Michigan, 1941; D. Phil., Oxford
University (England), 1950.
- Milton F. Hartvigen** Professor of Physical Education; Dean
of the College of Physical Education (1956)
B.S., M.Ed., Utah State University, 1930, 1939; Ed.D., University of California
at Los Angeles, 1956.
- Richard T. Hawkins** Assistant Professor of Chemistry (1959)
B.A., Brigham Young University, 1951; Ph.D., University of Illinois, 1959.
- C. Lynn Hayward** Professor of Zoology (1930)
B.S., M.S., Brigham Young University, 1927, 1931; Ph.D., University of Illinois, 1941.
- Alma Heaton** Assistant Professor of Recreation (1953)
B.S., M.S., Utah State University, 1950, 1951.
- Israel C. Heaton** Professor of Recreation (1956)
B.S., M.S., Utah State University, 1940, 1941; Re.D., University of Indiana, 1955.
- Armin J. Hill** Professor of Physics; Dean of the College of
Physical and Engineering Sciences (1957)
B.S., M.S., Montana State College, 1932, 1938; M.S., Ph.D., California Institute of
Technology, 1949, 1950.
- Max W. Hill** Assistant Professor of Physics (1958)
B.A., Brigham Young University, 1954; Ph.D., University of California, 1959.
- Lynn M. Hilton** Associate Professor of Education (1953)
B.S., M.S., University of Utah, 1950; Ph.D., University of Chicago, 1952.
- Lehi F. Hintze** Associate Professor of Education (1953)
B.A., University of Utah, 1941; M.A., Ph.D., Columbia University, 1949, 1951.
- Cynthia C. Hirst** Instructor in Physical Education (1948)
B.A., University of Utah, 1947; M.S., University of Washington, 1952.

- Harry Hodson** Professor of Civil Engineering (1953)
B.Sc., B.E., University of Sydney, 1938, 1940.
- Leona Holbrook** Professor of Physical Education (1937)
B.S., University of Utah, 1929; M.A., Ed.D., Columbia University, 1935, 1950.
- Keith H. Hoopes** Assistant Professor of Animal Husbandry (1957)
B.S., Utah State University, 1957; D.V.M., State College of Washington, 1956.
- A. Burt Horsley** Assistant Professor of Philosophy and Religion (1956)
B.A., M.A., Brigham Young University, 1945, 1954; Dd.P., Münster University, 1955;
Ph.D., Westphalian Wilhelms Universität, Münster, Germany, 1956.
- William A. Hoskisson** Assistant Professor of Bacteriology (1957)
B.S., M.S., Utah State University, 1938, 1941; Ph.D., University of Illinois, 1944.
- Robert J. Howell** Associate Professor of Psychology (1952)
B.A., M.A., Ph.D., University of Utah 1948, 1949, 1951.
- Paul V. Hyer** Assistant Professor of History (1957)
B.A., Brigham Young University, 1951; M.A., University of California, 1953.
- Reed M. Izatt** Assistant Professor of Chemistry (1956)
B.S., Utah State University, 1951; Ph.D., Pennsylvania State University, 1954.
- Briant S. Jacobs** Professor of English (1946)
B.A., Brigham Young University, 1939; Ph.D., State University of Iowa, 1944.
- Phyllis C. Jacobson** Instructor in Physical Education for Women (1957)
B.S., M.S., Utah State University, 1953, 1954.
- M. Wells Jakeman** Professor of Archaeology (1946)
B.A., University of Utah, 1931; M.A., University of Southern California, 1932; Ph.D.,
University of California, 1938.
- Martha R. Jenny** Associate Professor of Nursing (1952)
Diploma, Presbyterian Hospital School of Nursing, Chicago, 1926; B.S., Teachers
College, Columbia University, 1939; M.S., University of Wisconsin, 1946.
- De Lamar Jensen** Assistant Professor of History (1957)
B.A., Brigham Young University, 1952; M.A., Ph.D., Columbia University, 1953, 1957.
- Vern H. Jensen** Assistant Professor of Personnel and Guidance (1949)
B.S., M.S., Brigham Young University, 1948, 1950; Ed.D., University of Colorado,
1957.
- Gloria D. Jenson** Instructor in Library Science (1954)
B.S., Brigham Young University, 1950; M.S., Columbia University, 1954.
- Ernest C. Jeppson** Professor of Industrial Education (1959)
B.S., Utah State University, 1926; M.S., Colorado State University, 1938.
- J. Lorin Jex** Assistant Professor of Speech (1949)
B.A., M.A., Brigham Young University, 1947, 1950.
- Eldred A. Johnson** Associate Professor of Accounting (1955)
B.A., M.A., Brigham Young University, 1949, 1950; C.P.A., California, 1952.
- *Garth N. Jones** Assistant Professor of Political Science (1953)
B.S., Utah State University, 1947; M.S., Ph.D., University of Utah, 1948, 1954.
- *Jens J. Jonsson** Professor of Electrical Engineering (1953)
B.S.G.E., B.S.E.E., University of Utah, 1944, 1946; M.S.E.E., Ph.D., Purdue University,
1947, 1951.
- Joseph J. Keeler** Assistant Professor of Music; University Organist (1935)
B.S., M.A., Brigham Young University, 1940, 1950.
- Edwin R. Kimball** Professor of Physical Education (1935)
B.S., Brigham Young University, 1926; M.S., University of Southern California,
1935; Ed.D., University of Oregon, 1955.
- Hattie M. Knight** Assistant Professor of Library Science (1941)
B.S., Brigham Young University, 1941; B.S., in L.S., University of Denver, 1943;
B.S., in L.S., George Peabody College for Teachers, 1951.
- Mary A. Krider** Associate Professor of Educational Psychology (1954)
B.A., University of Nebraska, 1927; Ed.M., University of Oklahoma, 1940; Ph.D.,
Wayne State University, 1958.
- Jean T. Kunz** Instructor in Human Development and Family
Relationships (1957)
B.S., University of Idaho, 1940; M.A., George Peabody College, 1956.
- *Don H. Larsen** Associate Professor of Bacteriology (1952)
B.S., Brigham Young University, 1940; M.A., University of Nebraska, 1942; Ph.D.,
University of Utah, 1950.
- Vernon W. Larsen** Associate Professor of Sociology (1952)
B.A., M.A., Brigham Young University, 1949, 1950; Ph.D., Cornell University, 1957.
- Clinton F. Larson** Associate Professor of English (1947)
B.A., M.A., University of Utah, 1943, 1947; Ph.D., University of Denver, 1956.
- Gustive O. Larson** Assistant Professor of Church History and
Philosophy (1954)
B.A., M.A., University of Utah, 1920, 1926.
- Reuben D. Law** Professor of Education (1936)
B.S., M.S., Utah State University, 1928, 1933; Ed.D., University of Southern California,
1941.

- Harold R. Laycock** Assistant Professor of Music (1949)
B.A., M.A., Brigham Young University, 1937, 1947.
- Ralph G. Laycock** Assistant Professor of Music (1953)
B.A., Brigham Young University, 1941; M.S., Julliard School of Music, N.Y.C., 1948.
- Robert L. Layton** Assistant Professor of Geography (1954)
B.S., M.S., University of Utah, 1951, 1952.
- Harold W. Lee** Professor of Modern Languages (1937)
B.A., M.A., Brigham Young University, 1938, 1940; Ph.D., Stanford University, 1946.
- Wesley P. Lloyd** Professor of Personnel and Guidance; Dean
of the Graduate School (1935)
B.S., M.S., Brigham Young University, 1927, 1934; Ph.D., University of Chicago, 1937.
- Howard D. Lowe** Professor of Finance and Banking (1947)
B.S., M.A., Utah State University, 1945, 1948; C.P.A., Utah, 1949; D.B.A., Indiana University, 1957.
- Daniel H. Ludlow** Associate Professor of Religion (1955)
B.S., Utah State University, 1946; M.S., Indiana University, 1953; Ed.D., Columbia University, 1955.
- Ross "J" McArthur** Assistant Professor of Industrial Arts (1956)
B.S., M.S., Utah State University, 1949, 1953; Ed.D., University of Missouri, 1955.
- *John E. McKendrick** Assistant Professor of English (1953)
B.A., M.A., University of Utah, 1942, 1949.
- Kent H. McKnight** Associate Professor of Botany (1947)
B.S., M.S., Brigham Young University, 1948, 1952; Ph.D., University of Michigan, 1955.
- Delbert H. McNamara** Associate Professor of Physics (1955)
B.S., Ph.D., University of California (Berkeley), 1947, 1950.
- Walter E. McPhie** Assistant Professor of Education (1959)
B.S., Utah State University, 1952; M.A., University of Utah, 1953; Ed.D., Stanford University, 1959.
- Melvin P. Mabey** Assistant Professor of History and Political Science (1955)
B.S., M.A., Brigham Young University, 1947, 1953; D.Phil., Oxford University, (England), 1955.
- Truman G. Madsen** Assistant Professor of Philosophy and Religion (1957)
B.S., M.S., University of Utah, 1950, 1951; A.M., Ph.D., Harvard University, 1957, 1960.
- Milton Marshall** Professor of Physics (1919)
B.A., Brigham Young University, 1918; Ph.D., University of Chicago, 1924.
- Daniel L. Martino** Associate Professor of Music (1956)
B.S., M.A., University of Minnesota, 1938, 1945.
- Conan E. Mathews** Professor of Art, Dean of College of Fine Arts (1956)
B.A., College of Idaho, 1936; M.F.A., University of Utah, 1950.
- Merlin J. Mecham** Associate Professor of Speech (1954)
B.A., Brigham Young University 1948; M.S., Utah State University, 1949; Ph.D., Ohio State University, 1954.
- *J. Keith Melville** Assistant Professor of Political Science (1957)
B.A., University of Utah, 1947; M.A., University of California, 1949; Ph.D., University of Utah, 1956.
- Evan J. Memmott** Instructor in Education (1955)
B.S., M.S., Utah State University, 1950, 1952; M.S., Indiana University, 1953.
- Keith Meservy** Instructor in Religion (1958)
B.A., Brigham Young University, 1951.
- Martin L. Miller** Assistant Professor of Physics and Mathematics (1942)
B.A., M.A., Brigham Young University, 1942, 1950.
- Marion Millett** Assistant Professor of Geography (1958)
B.A., University of Southern California, 1954; M.A., University of Colorado, 1956.
- Albert O. Mitchell** Professor of Speech and Dramatic Arts (1956)
B.S., M.S., University of Utah, 1933, 1935; Ph.D., University of Wisconsin, 1938.
- J. C. Moffitt** Professor of Educational Administration; Special
Consultant to the Department of Educational Administration (1953)
B.S., M.S., Brigham Young University, 1926, 1929; Ph.D., University of Chicago, 1940.
- J. Weldon Moffitt** Assistant Professor of Psychology (1953)
B.S., Brigham Young University, 1949; M.S., University of Utah, 1950; Ph.D., University of Illinois, 1952.
- Darrel J. Monson** Associate Professor of Electrical Engineering (1956)
B.S., University of Utah, 1943; M.S., University of California (Berkeley), 1952.
- Samuel C. Monson** Associate Professor of English (1952)
B.S., Utah State University, 1941; M.A., Ph.D., Columbia University, 1948, 1953.
- Glen Moore** Assistant Professor of Botany (1958)
B.S., M.S., Brigham Young University, 1949, 1950; Ph.D., University of Chicago, 1953.

- Alonzo J. Morley** Professor of Speech (1928)
B.A., M.A., Brigham Young University, 1925, 1931; Ph.D., University of Iowa, 1935.
- *A. Reed Morrill** Professor of Educational Administration (1948)
B.S., M.S., Brigham Young University, 1928, 1937; Ed.D., University of Oregon, 1948.
- Lawrence Morris** Professor of Animal Husbandry (1952)
B.S.A., University of Arizona, 1925; M.S., Texas A. & M., 1928; Ph.D., Louisiana State University, 1938.
- Sadie O. Morris** Professor of Food and Nutrition (1957)
B.S., M.S., Utah State University, 1921, 1922; Ph.D., Columbia University, 1933.
- J. Richard Murdock** Assistant Professor of Botany (1952)
B.S., M.S., Brigham Young University, 1949, 1951; Ph.D., State College of Washington, 1957.
- William V. Nash** Instructor in Library Science (1957)
B.A., Brigham Young University, 1950; M.S., University of Illinois, 1957.
- Glen T. Nelson** Professor of Economics (1954)
B.S., M.S., Utah State University, 1942, 1948; Ph.D., University of Illinois, 1950.
- K. LeRoi Nelson** Associate Professor of Chemistry (1956)
B.S., Utah State University, 1948; Ph.D., Purdue University, 1952.
- H. Mark Nelson** Assistant Professor of Physics (1959)
B.S., M.S., Brigham Young University, 1953, 1954; Ph.D., Harvard University, 1959.
- Hugh W. Nibley** Professor of History and Religion (1946)
B.A., University of California at Los Angeles, 1934; Ph.D., University of California, 1938.
- Henry J. Nicholes** Associate Professor of Health Education (1946)
B.A., Brigham Young University, 1935; M.S., Ph.D., University of Wisconsin, 1939, 1941.
- Joseph K. Nicholes** Professor of Chemistry (1933)
B.A., Brigham Young University, 1916; M.A., Stanford University, 1924.
- Howard C. Nielson** Associate Professor of Economics (1957)
B.S., University of Utah, 1947; M.S., University of Oregon, 1949; M.B.A., Ph.D., Stanford University, 1956, 1957.
- Quentin R. Nordgren** Assistant Professor of Music (1955)
B.A., M.A., Brigham Young University, 1942, 1950; Ph.D., Indiana University, 1955.
- Keith R. Oakes** Professor of Educational Administration (1957)
B.S., M.S., Utah State University, 1940, 1948; Ed.D., University of Southern California, 1954.
- Clinton L. Oaks** Associate Professor of Marketing (1957)
B.A., Brigham Young University, 1948; M.B.A., Ph.D., Stanford Graduate School of Business, 1950, 1955.
- Ernest L. Olson** Assistant Professor of English (1953)
B.A., M.A., University of Utah, 1948, 1949.
- *John E. Ord** Assistant Professor of Education (1957)
B.S., Utah State University, 1940; M.S., University of Utah, 1949; Ed.D., Stanford University, 1958.
- Glen F. Ovard** Assistant Professor of Educational Philosophy (1958)
B.S., M.E., Brigham Young University, 1949, 1954; Ed.D., Stanford University, 1958.
- Clyde A. Parker** Associate Professor of Personnel and Guidance (1953)
B.S., M.S., Brigham Young University, 1952; Ph.D., University of Minnesota, 1957.
- Robert C. Patch** Assistant Professor of Religion (1959)
B.A., University of New Mexico, 1945; M.A., Brigham Young University, 1949.
- John W. Payne** Assistant Professor of Sociology (1947)
B.A., M.A., Brigham Young University, 1936, 1948.
- Glenn Pearson** Assistant Professor of Religion (1951)
B.S., Utah State University, 1949; M.A., Brigham Young University, 1951.
- Dean A. Peterson** Associate Professor of Business Education and Office Management; Director of the Summer School (1942)
B.S., Brigham Young University, 1938; M.S., Ed.D., University of Southern California, 1942, 1959.
- Evan T. Peterson** Assistant Professor of Sociology (1959)
B.S., M.S., Brigham Young University, 1952, 1953; Ph.D., University of Michigan, 1959.
- Hugh W. Peterson** Associate Professor of Chemistry (1927)
B.A., M.A., Brigham Young University, 1916, 1928; Ph.D., State University of Iowa, 1936.
- William R. Phillips** Assistant Professor of Geology (1957)
B.S., M.S., Ph.D., University of Utah, 1950, 1951, 1954.
- Richard D. Poll** Professor of History and Political Science (1948)
B.A., M.A., Texas Christian University, 1938, 1939; Ph.D., University of California (Berkeley), 1948.
- *Bill J. Pope** Associate Professor of Chemical Engineering (1958)
B.S., University of Utah, 1947; M.S., University of Washington, 1948; Ph.D., University of Washington, 1959.

- Blaine M. Porter** Professor of Human Development and Family Relationships (1955)
B.S., M.A., Brigham Young University, 1947, 1949; Ph.D., Cornell University, 1952.
- Virginia B. Poulson** Assistant Professor of Homemaking Education (1950)
B.S., Brigham Young University, 1931; M.Ed., Colorado A. & M. 1955.
- Ellis T. Rasmussen** Assistant Professor of Religion (1951)
B.S., M.A., Brigham Young University, 1942, 1951.
- Edwin A. Read** Director of Laboratory Schools; Associate Professor of Education (1959)
B.Ed., M.Ed., University of Alberta, 1948, 1949; Ed.D., University of Oregon, 1956.
- Jesse W. Reeder** Associate Professor of History and Political Science (1952)
B.S., M.S., Utah State University, 1934, 1937; Ph.D., Cornell University, 1952.
- *Howard T. Reid** Professor of Personnel and Guidance; Assistant Dean of Students (1953)
B.A., Brigham Young University, 1940; M.S., Ed.D., University of Southern California, 1947, 1949.
- Naoma Rich** Assistant Professor of Library Science (1937)
B.S., Brigham Young University, 1931; Certificate in Library Science, Riverside Library School, 1932.
- *Owen S. Rich** Assistant Professor of Radio Speech (1950)
B.S., Brigham Young University, 1950; M.A., University of Southern California, 1953.
- Russell R. Rich** Professor of Religious Instruction (1953)
B.S., Utah State University, 1936; M.A., Brigham Young University, 1949; Ed.D., University of Wyoming, 1955.
- Grant S. Richards** Associate Professor of Animal Husbandry (1945)
B.S., M.S., Utah State University, 1940, 1942.
- Jed J. Richardson** Instructor in Speech (1955)
B.S., M.S., Utah State University, 1950, 1955.
- Eldin Ricks** Assistant Professor of Religion (1949)
B.S., Brigham Young University, 1941; M.A., University of Southern California, 1949.
- Chauncey C. Riddle** Associate Professor of Religion and Philosophy (1952)
B.S., Brigham Young University, 1947; M.A., Ph.D., Columbia University, 1951, 1958.
- J. Keith Rigby** Associate Professor of Geology (1953)
B.S., M.S., Brigham Young University, 1948, 1949; Ph.D., Columbia University, 1952.
- Burton W. Robinson** Associate Professor of Clinical Psychology (1955)
B.S., M.S., Utah State University, 1951; Ph.D., Purdue University, 1954.
- Donald W. Robinson** Associate Professor of Mathematics (1956)
B.S., M.A., University of Utah, 1948, 1952; Ph.D., Case Institute of Technology, 1956.
- Clarence F. Robison** Assistant Professor of Physical and Health Education; Head Track Coach (1948)
B.S., Brigham Young University, 1949; M.S., University of Michigan, 1954.
- R. Max Rogers** Professor of Modern Languages (1945)
B.A., M.A., Brigham Young University, 1940, 1942; Ph.D., Stanford University, 1951.
- Sadie Rogers** Special Instructor in Education (1956)
B.S., M.S., University of Utah, 1941, 1953.
- Ralph L. Rollins** Associate Professor of Civil Engineering (1956)
B.S., M.S., Utah State University, 1941, 1949; Ph.D., Iowa State College, 1954.
- Antone K. Romney** Professor of Educational Psychology; Dean of Students (1945)
B.S., M.S., Brigham Young University, 1933, 1934; Ed.D., Stanford University, 1947.
- Richard D. Sagers** Assistant Professor of Bacteriology (1958)
B.S., M.S., Brigham Young University, 1954, 1955; Ph.D., University of Illinois, 1958.
- Clyde D. Sandgren** General Counsel, Professor of Business Law
B.S., Brigham Young University, 1937; LL.B., St. John's University, 1939.
- Lawrence W. Sardoni** Associate Professor of Music (1945)
B.A., M.A., Brigham Young University, 1935, 1946.
- Morris A. Shirts** Assistant Professor of Education (1952)
B.A., M.A., Brigham Young University, 1947, 1950; Ed.D., Indiana University, 1952.
- R. Phil Shumway** Associate Professor of Animal Husbandry (1949)
B.S., Utah State University, 1947; M.S., University of Minnesota, 1949; Ph.D., Utah State University, 1959.
- John M. Simonsen** Associate Professor of Mechanical Engineering (1954)
B.S.M.E., University of Utah, 1950; M.S.M.E., Ph.D., Purdue University, 1952, 1955.
- *Karl M. Skousen** Instructor in Accounting (1958)
B.S., M.S., Brigham Young University, 1944, 1957; C.P.A., Utah, 1957.
- Lyman F. Smart** Assistant Professor of English (1953)
B.A., Idaho State College, 1950; M.A., University of New Mexico, 1952.
- Jay M. Smith, Jr.** Instructor in Accounting (1957)
B.S., Brigham Young University, 1953; C.P.A., Utah, 1957.

- Oliver R. Smith** Professor of Journalism (1938)
B.A., Brigham Young University, 1938; Ph.D., State University of Iowa, 1951.
- Robert J. Smith** Professor of Accounting (1949)
B.S., Brigham Young University, 1948; M.B.A., Northwestern University, 1949;
C.P.A., Illinois, 1949; C.P.A., Utah, 1950; D.B.A., Indiana University, 1957.
- Wilford E. Smith** Associate Professor of Sociology (1948)
B.A., University of Utah, 1943; M.A., Brigham Young University, 1948; Ph.D.,
University of Washington, 1952.
- Richard L. Snow** Assistant Professor of Chemistry (1957)
B.S., Ph.D., University of Utah, 1953, 1957.
- H. Wayne Soffe** Assistant Professor of Physical Education (1938)
B.S., M.S., Brigham Young University, 1938, 1941; D.P.E., Indiana University, 1955.
- John L. Sorenson** Assistant Professor of Anthropology and
Sociology (1958)
B.S., M.A., Brigham Young University, 1951, 1952; M.S., California Institute of
Technology, 1952.
- Irene Osmond Spears** Associate Professor of English (1936)
B.A., Brigham Young University, 1929; M.A., Ph.D., Stanford University, 1934,
1942.
- Sidney B. Sperry** Professor of Old Testament Languages and
Literature (1932)
B.A., University of Utah, 1917; M.A., Ph.D., University of Chicago, 1926, 1931.
- Stephen S. Stanford** Assistant Professor of Housing and Home
Management (1959)
B.S., M.S., Brigham Young University, 1950, 1951; Ph.D., University of Colorado,
1959.
- Floyd C. (Tally) Stevens** Associate Professor of Physical Education;
Head Football Coach (1956)
B.S., University of Utah, 1949.
- Dee Leon Storrs** Instructor in Library Science (1957)
B.S., Brigham Young University, 1953; M.S., University of Washington, 1957.
- *Howard C. Stutz** Assistant Professor of Botany (1953)
B.S., M.S., Brigham Young University, 1940, 1951; Ph.D., University of California
(Berkeley), 1956.
- Albert D. Swensen** Professor of Chemistry (1947)
B.A., M.A., Brigham Young University, 1937, 1938; Ph.D., Louisiana State University,
1941.
- Russel B. Swensen** Professor of History (1933)
B.A., Brigham Young University, 1926; M.A., Ph.D., University of Chicago, 1931,
1934.
- Joseph N. Symons** Professor of Sociology (1953)
B.S., M.S., Utah State University, 1927, 1932; Ph.D., University of Chicago, 1944.
- Orea B. Tanner** Associate Professor of English (1938)
B.A., Brigham Young University, 1932; M.A., Columbia University, 1953.
- Vasco M. Tanner** Professor of Zoology and Entomology (1925)
B.A., Brigham Young University, 1915; M.A., University of Utah, 1920; Ph.D.,
Stanford University, 1925.
- Wilmer W. Tanner** Associate Professor of Zoology and
Entomology (1949)
B.S., M.A., Brigham Young University, 1936, 1937; Ph.D., University of Kansas,
1949.
- Charles Taylor** Associate Professor of Psychology (1954)
B.Mus., A.B., Ph.D., Syracuse University, 1940, 1948, 1954.
- H. Darrel Taylor** Associate Professor of Modern Languages (1948)
B.A., M.A., University of Arizona, 1947, 1948; Ph.D., University of Illinois, 1956.
- Harvey L. Taylor** Vice-President; Professor of Educational Administration
B.S., University of Utah, 1921; M.A., Columbia University, 1925; LL.D., Arizona State
College, 1956.
- Weldon J. Taylor** Professor of Marketing; Dean, College of
Business (1937)
B.S., Brigham Young University, 1934; M.B.A., Harvard Graduate School of Business
Administration, 1937; Ph.D., Graduate School of Business Administration, New York
University, 1955.
- Robert K. Thomas** Assistant Professor of English (1951)
B.A., Reed College, 1947; M.A., University of Oregon, 1949.
- Woodruff C. Thomson** Assistant Professor of English (1950)
B.A., M.A., University of Utah, 1938, 1949.
- Lucile Markham Thorne** Instructor in Library Science (1950)
B.A., M.Ed., Brigham Young University, 1929, 1956; M.S., University of Southern
California, 1958.
- James R. Tolman** Assistant Professor of Library Science (1957)
B.A., Utah State University, 1949; M.S., University of Illinois, 1951.

- Glen H. Turner** Associate Professor of Art (1947)
B.S., M.A., Brigham Young University, 1940, 1948.
- Rodney Turner** Assistant Professor of Religion (1956)
B.A., M.A., Brigham Young University, 1949, 1953.
- L. Elliott Tuttle** Assistant Professor of Geography (1936)
B.S., M.S., Brigham Young University, 1938, 1948.
- S. Lyman Tyler** Associate Professor of History; Director of Libraries (1952)
B.S., Ph.D., University of Utah, 1949, 1951.
- Clarence Tyndall** Assistant Professor of Education (1946)
B.S., Brigham Young University, 1941; M.A., Stanford University, 1952.
- Quentin E. Utley** Instructor in Education (1957)
B.S., Brigham Young University, 1940.
- Lee B. Valentine** Associate Professor of Modern Languages (1938)
B.A., M.A., Brigham Young University, 1939, 1948; Ph.D., Stanford University, 1958.
- Glenn M. Vernon** Associate Professor of Sociology (1959)
B.S., M.S., Brigham Young University, 1947, 1950; Ph.D., Washington State University, 1953.
- *Leo P. Vernon** Associate Professor of Chemistry (1954)
B.A., Brigham Young University, 1948; Ph.D., Iowa State College, 1951.
- J. Homer Wakefield** Assistant Professor of Music (1949)
B.S., M.S., M.A., Brigham Young University, 1924, 1933, 1950.
- Mont M. Warner** Instructor in Geology (1958)
B.A., M.A., Brigham Young University, 1947, 1949.
- Arthur R. Watkins** Professor of Modern Languages (1952)
B.A., M.A., Brigham Young University, 1941, 1942; Ph.D., Stanford University, 1948.
- Ray Waters** Assistant Professor of Health Education (1957)
B.S., M.S., Utah State University, 1948, 1950.
- Stanley H. Watts** Associate Professor of Physical Education;
Head Basketball Coach (1947)
B.S., Brigham Young University, 1938.
- Newell B. Weight** Assistant Professor of Music (1948)
B.A., M.A., Brigham Young University, 1938, 1946.
- Kurt Weinzing** Instructor in Music (1956)
Music Diplomas, Academy of Music and Arts, Vienna, Austria, 1951, 1953.
- Dale H. West** Assistant Professor of English (1947)
B.A., Brigham Young University, 1940; M.A., University of Southern California, 1955.
- Harold F. Western** Instructor in Accounting (1958)
B.S., Brigham Young University, 1954; C.P.A., Utah 1959.
- J. Morgan White** Instructor in Accounting (1953)
B.S., M.S., Brigham Young University, 1951, 1958; C.P.A., Utah, 1953.
- Ray T. Wilcox** Assistant Professor of Education (1957)
B.S., M.Ed., Brigham Young University, 1951, 1954; Ed.D., University of California (Berkeley), 1957.
- William L. Wilkes, Jr.** Instructor in Music (1957)
B.A., Brigham Young University, 1952; Ph.D., University of Southern California, 1956.
- Ernest J. Wilkins** Associate Professor of Modern Languages (1953)
B.A., Brigham Young University, 1947; M.A., Ph.D., Stanford University, 1949, 1954.
- Ernest L. Wilkinson** President of the University
B.A., Brigham Young University, 1921; LL.B., George Washington University, 1926; S.J.D., Harvard University, 1927; LL.D., Brigham Young University, 1957.
- M. Lyman Wilson, Jr.** Assistant Professor of Industrial Management (1956)
B.A., Brigham Young University, 1954; M.B.A., Stanford Graduate School of Business, 1956.
- *Marguerite L. Wilson** Instructor in Educational Psychology (1956)
B.S., University of Utah, 1943; M.F.A., San Francisco State College, 1955.
- Warren B. Wilson** Associate Professor of Art and Education (1954)
B.S., Utah State University, 1943; M.F.A., State University of Iowa, 1949.
- John H. Wing** Assistant Professor of Chemistry (1931)
B.S., M.S., Brigham Young University, 1926, 1934.
- Glena D. Wood** Assistant Professor of English (1952)
B.A., Brigham Young University, 1936; M.A., Ph.D., University of Kentucky, 1949, 1958.
- Stephen L. Wood** Assistant Professor of Zoology and Entomology (1956)
B.S., M.S., Utah State University, 1946, 1948; Ph.D., University of Kansas, 1953.
- Lael J. Woodbury** Associate Professor of Speech (1954)
B.S., Utah State University, 1952; M.A., Brigham Young University, 1953; Ph.D., University of Illinois, 1954.
- Asahel D. Woodruff** Professor of Educational Psychology; Dean
of the College of Education (1949)
B.S., M.S., Brigham Young University, 1936, 1937; Ph.D., University of Chicago, 1941.

- Ralph Woodward** Assistant Professor of Music (1955)
B.S., University of Idaho, 1940; M.M., Cincinnati Conservatory of Music, 1948.
- *Golden L. Woolf** Professor of Educational Administration (1934)
B.A., M.A., Brigham Young University, 1934, 1936; Ed.D., University of California, 1940.
- David H. Yarn, Jr.** Professor of Theology and Philosophy; Dean of the
College of Religious Instruction (1950)
B.A., Brigham Young University, 1946; M.A., Ed.D., Columbia University, 1949, 1958.
- Karl E. Young** Professor of English (1930)
B.A., M.A., Oxford University (England), 1930, 1934.

Note: Names of faculty members on leave are marked with asterisks (*).

General Information

Purpose

The Graduate Division of Brigham Young University, which later became the Graduate School, was established as an administrative unit in 1922, 47 years after the founding of the Brigham Young Academy in 1875.

The essential aim of graduate study is to develop the power within individuals to do independent work and to encourage the spirit of research and discovery. The Graduate School offers the opportunity for scholarly development at the highest and finest levels. The maturing of scholarship and the opportunity to participate in the expansion of the boundaries of knowledge are thrilling challenges to alert minds.

Educational institutions such as Brigham Young University reflect the aspirations and problems of the American people. They carry the ideals, dreams, and hopes of democracy from generation to generation. Their ranks must be filled with men and women trained in the skills, the arts, and the sciences and dedicated to a higher spiritual understanding through which all men can work for the common good.

Adminstration and Organization

The faculty of the Graduate School consists of those who hold the rank of professor or associate professor, assistant professor with a doctoral degree, and others approved by the Graduate Council. It is the responsibility of the graduate faculty to formulate and recommend requirements for all graduate degrees and to recommend regulations and facilities to promote the scholarly activities and research interests of graduate students.

The chief administrative body of the graduate faculty is the Graduate Council, which consists of (1) the academic vice-president of the University, the dean of the Graduate School, and the director of research, ex officio; (2) four members of the graduate faculty elected at large for terms of three years; (3) nine members of the graduate faculty, one elected from each of the nine colleges in which there are departments offering graduate work, elected for terms of three years. The Graduate Council is empowered to act for the graduate faculty on all student petitions and on departmental requests for approval of faculty members for graduate instruction and supervision.

Subject to review by the President, the administration of the graduate program is vested in the dean of the Graduate School and the Graduate Council which in turn delegates the operation of the specific program in any given area to the department or group of departments involved, which may in turn delegate the responsibility to a departmental or interdepartmental graduate committee.

The Graduate School offers the master's degree in 68 fields distributed through 40 departments and the doctor's degree in 18 fields distributed through 12 departments. A department may be responsible for the operation of the graduate program in several fields. On the other hand, one field may include the offerings of several departments. The departments are in 9 colleges: Biological and Agricultural Sciences; Business; Education; Family Living; Fine Arts; Humanities and Social Sciences; Physical and Engineering Sciences; Physical Education; and Religious Instruction.

Majors for advanced degrees are offered in the following fields:

Doctor of Philosophy

Chemistry

Analytical-Physical Chemistry
Biochemistry
Inorganic Chemistry

- Organic Chemistry
- Physical Chemistry
- Educational Psychology
- Geology
 - Economic Geology and Mineralogy
 - Stratigraphy, Sedimentation, and Paleontology
 - Structural, Field, and Dynamic Geology
- History
- Human Development and Family Relationships
- Musicology
- Physics
- Psychology
 - Clinical Psychology
 - General Psychology
- History and Philosophy of Religion
- Bible and Modern Scripture
- Sociology

Doctor of Education

- Educational Administration
- Educational Psychology

Master of Education

- Educational Administration
- Educational Research and Services
 - Educational Psychology
 - Personnel and Guidance
 - School Psychology
 - Special Education
- Instruction
 - Elementary Instruction
 - Secondary Instruction

Master of Religious Education

- Religious Education

Master of Science and Master of Arts

- Accounting
- Agronomy
- Animal Husbandry
- Archaeology
- Art
 - Painting and Sculpture
 - Design and Crafts
- Bacteriology
- Bible and Modern Scripture
- Botany
- Business Education
- Business Management
 - Business Management
 - Finance and Banking
 - Industrial Management
 - Marketing
- Chemistry
 - Analytical-Physical Chemistry
 - Biochemistry

- Inorganic Chemistry
- Organic Chemistry
- Physical Chemistry
- Civil Engineering
- Economics
- Educational Administration
- Educational Research and Services
 - Educational Psychology
 - Personnel and Guidance
 - School Psychology (interdepartmental)
 - Special Education
- Electrical Engineering
- English
 - American Literature
 - English Literature
- Foods and Nutrition
- Geography
- Geology
 - Economic Geology and Mineralogy
 - Stratigraphy, Sedimentation, and Paleontology
 - Structural, Field, and Dynamic Geology
- Health
- History
- History and Philosophy of Religion
- Human Development and Family Relationships
- Instruction
 - Elementary Instruction
 - Secondary Instruction
- Journalism
- Languages
 - French
 - German
 - Greek
 - Latin
 - Portuguese
 - Spanish
- Mathematics
- Mechanical Engineering
- Music
 - Music Education
 - Music Theory
 - Musicology
- Physical Education
- Physics
- Political Science
- Psychology
 - General Psychology
 - School Psychology (interdepartmental)
- Recreation
- Semitic Languages
- Sociology
- Speech and Dramatic Arts
 - Public Speaking
 - Interpretation
 - Radio and Television

Theatre and Dramatic Arts
 Speech Pathology
 Zoology
 Natural History
 Entomology
 Morphology and Experimental Zoology

Minors are offered in the fields listed above, in addition to the following fields:

Agricultural Economics
 Basic Chemistry Minor
 Educational Philosophy and Programs
 Library Science
 Applied Music

General Requirements

ADMISSION TO THE GRADUATE SCHOOL

At Brigham Young University, all students (except those seeking a second bachelor's degree) who have the bachelor's degree from an accredited university register with the Graduate School.

Requirements for Admission on a Degree-Seeking Basis. A student who intends to work for an advanced degree must have achieved at least a "B" (3.0) average in the last two years of college work. The department may require additional evidence concerning the applicant's ability to pursue graduate work in his major field, such as capacity for research or creativity, facility in written and oral expression, and appropriate professional objectives, and may require qualifying examinations or other criteria as a basis for its decision. Remedial work or other requirements may then be prescribed.

A student whose native language is not English is cautioned that adequate command of the English language is indispensable to successful graduate work. He must include with his application for admission a statement from a responsible official that the applicant knows how to read, write, speak, and understand the English language sufficiently well to be able to pursue a satisfactory program of study in the Graduate School. He should anticipate admission on a provisional basis until he proves his ability to do graduate work.

Procedure for Admission on a Degree-Seeking Basis. To be admitted to the Graduate School on a degree-seeking basis, a student should file the following forms with the Graduate School Office: (1) An application for admission or readmission to the University (unless he was in attendance the preceding semester). (2) An application for admission to the Graduate School on a degree-seeking basis. (3) Two transcripts of all preceding college work (if that work was not done at Brigham Young University). (4) Three letters of recommendation—two concerning the student's academic ability and the third concerning his character (these letters should be sent directly to the Graduate School Office by those making the recommendations). Forms for application and for letters of recommendation are provided by the Graduate School Office.

Normally, the application forms should be filed at least two months before the beginning of the semester in which the student plans to begin his work. Students who do not have their applications filed by this date cannot be assured that their applications will be acted upon by the time school opens.

The forms are evaluated by the dean of the Graduate School and by the department in which the student intends to major. Permission to register in the Graduate School is by notice from the University Admissions Office and does not by itself constitute permission to seek a higher degree. Permission to seek a higher degree is by notice signed by the dean of the Graduate School and the chairman of the department.

Provisional Students. The student who does not have a "B" (3.0) average for the last two years of college work or who matriculated from a university which is not accredited, may be admitted as a provisional student upon the recommendation of his department chairman. Admission from this category to full degree-seeking status may be granted upon the completion of at least 12 semester hours of "B" credit in work prescribed by the department chairman, upon the recommendation of the department chairman and upon the approval of the dean of the Graduate School. Up to 12 semester hours earned while a provisional student may be applied on the degree if approved by the student's advisory committee.

Admission on a Non-Degree-Seeking Basis. A student with the bachelor's degree may register on a non-degree-seeking basis for a wide variety of courses for which he is prepared. To be admitted to the Graduate School on a non-degree-seeking basis, a student should file an application for admission or readmission with the University Admissions Office (unless he was in attendance the preceding semester), furnish an official transcript of all preceding work at institutions attended (if that work was not done at Brigham Young University), and show evidence of receiving the bachelor's degree. Admission is by means of a registration permit issued by the University Admissions Office. If a student has been in attendance at Brigham Young University the previous semester registration materials are automatically prepared for him.

GRADUATE CREDIT FOR SENIORS

If, during the last semester of the senior year, a candidate for a baccalaureate degree finds it possible to complete all requirements for such a degree with a registration of fewer than sixteen hours of undergraduate credit, he may register for graduate credit to the extent that the total registration shall not exceed sixteen hours during the semester. A form, provided by the Graduate School Office, stating that all baccalaureate requirements are being met during the current semester, must be signed by the appropriate undergraduate dean and presented to the dean of the Graduate School prior to such registration. This registration does not constitute permission to seek a higher degree.

TRANSFERRED CREDIT

Graduate work may be transferred from other institutions upon the approval of the student's advisory committee and the Graduate Council. Forms for petitioning for such transfers are available in the Graduate School Office. Credit transferred must represent work which is a fair and reasonable equivalent of corresponding work in this University. All transferred credit must be of grade "B" or better. At least twenty semester hours toward the master's degree must be taken on the Brigham Young University campus in Provo.

STUDENT LOAD

A normal full load is considered to be from 12 to 16 semester hours or their equivalent in research. Teaching assistants and others employed approximately one-half time should limit their loads to not more than 12 semester hours, and full-time employees to not more than 5 semester hours. Experience has shown that because of the intense character of graduate work and the academic grade-point average required, it is usually advisable for graduate students to limit their programs to something less than the maximum permitted when employed on a full or part-time basis.

SCHOLASTIC STANDARDS

The degree-seeking student who fails to maintain at least a 2.7 grade-point average in his graduate work each semester will be placed on probation and must earn a "B" (3.0) average in graduate level work the next semester or he ceases to be on a degree-seeking basis. The average grade of all graduate work attempted must be at least "B". At least three-fourths of all work applying on the degree must be of grade "B" or better, none of the remainder may be of a grade lower than "C".

ENGLISH 99

Students whose ability to write clearly and correctly is not deemed satisfactory by the department involved are required to enroll in English 99, a non-credit course, Problems in Thesis Writing. Students should take this course at the earliest possible time.

DEPARTMENTAL REQUIREMENTS

Special departmental requirements for advanced degrees are listed under the major department.

APPLICATION FOR GRADUATION

A student, when contemplating graduation, should file an application for graduation with the Graduate School Office and pay the graduation fee. This should be done by January 15 for June graduates and by March 15 for August graduates. This should be done before filing the thesis with the Graduate School or scheduling the final examination.

GRADUATION

All graduating students must attend the graduation exercises unless they have been excused or have made satisfactory explanations of absence.

Master's Degree

Admission on a degree-seeking basis must be completed before the student registers for the last twenty hours of credit intended to apply on the degree.

ADVISORY COMMITTEE

The student's program and his thesis or dissertation are developed under the direction and supervision of an advisory committee. The advisory committee for a student working toward the master's degree consists of two members. These members are nominated by the student from the graduate faculty of his major and minor fields in consultation with the chairman of his major department and with the approval of the dean of the Graduate School. The chairman of the advisory committee is a representative of the major field. This committee advises the student in his proposed program, approves his registration, and directs his research and the work on his thesis. At least 20 hours must be taken after the advisory committee has been formed and must be approved by the advisory committee at registration. All work which is to apply toward an advanced degree must be approved by the advisory committee.

As soon as his program is determined in consultation with the advisory committee, the student should supply each member of the committee with an outline of the program, and he should file a copy which is signed by the committee members with the Graduate School Office.

The membership of the advisory committee may be changed with the approval of all members of the newly constituted committee, the chairman of the major department, and the dean of the Graduate School. After such a change, the student reviews his entire program with the new committee.

AMOUNT AND DISTRIBUTION OF CREDIT

The master's degree requires the completion of 30 or more semester hours of credit. At least 15 of the hours must be in the major field and at least 10 in a minor field approved by the major department. At least 10 hours in the major field and 6 hours in the minor field must consist of courses for which there is a systematic body of subject matter identified with a given course number such as ordinarily constitutes a formal course or seminar. Individual reading and special problems may not be included in these latter totals.

A limited amount of upper division undergraduate work may be applied toward the master's degree only if starred and initialed on the program outline by the student's adviser at the beginning of the student's graduate work. No

such work carrying a "C" grade will be applied toward the master's degree. At least 20 hours of the work for the master's degree must be in the 500 series or above and taken on the Brigham Young University campus in Provo.

No correspondence credit is applicable toward a master's degree.

MASTER'S THESIS

At Brigham Young University a thesis is required for the Master of Arts or Master of Science degree unless a piece of creative work is substituted in the major field. Such fields are music theory, theatre and dramatic arts, painting and sculpture, design, and American and English literature. A field project is substituted for the thesis in the Master of Education program.

The prospective candidate for the master's degree enrolls for a thesis (course 699) in his major department. Before beginning his research or creative work, the student must obtain approval of the thesis problem from his advisory committee, and he must file a title card and a prospectus, both signed by the members of the advisory committee, with the Graduate School Office. He is required to complete at least one semester of study after this is done. A complete, signed, but unbound copy of the thesis and three copies of an approved abstract of not more than 600 words must be on file in the Graduate School Office and other copies of the thesis and abstract must be distributed among the student's committee members fifteen days prior to the final examination and not later than thirty days before graduation. A minimum of four copies of the thesis and abstract is required by the Graduate School. The abstract should be bound with the thesis, following the bibliography.

Detailed directions for the form of the thesis may be obtained from the Graduate School Office. Up to four hours of thesis credit may be counted in the 30 hour requirement toward the master's degree.

FINAL ORAL EXAMINATION

The passing of a final oral examination not less than fifteen days prior to graduation is required. It is the duty of the student to schedule the final examination after obtaining from the chairman of the major department the names of the examining committee. Forms are available for this purpose.

The examination is conducted by a committee of five voting members, to be made up of the members of the advisory committee and others appointed by the chairman of the major department. The chairman of the advisory committee is in charge of the examination. Four affirmative votes are needed to pass. Other members of the graduate faculty may attend the examination and enter the discussion, but they may not vote.

The final oral examination consists of a defense of his thesis by the student and a searching examination into the student's preparation and competence in his major and minor fields.

MASTER'S DEGREES OFFERED

Master of Science Degree. The Master of Science degree is awarded upon completion of the general requirements listed above and any special requirements listed by the department.

Master of Arts Degree. The Master of Arts degree is awarded upon completion of general and departmental requirements, plus completion of the foreign language requirement for a Bachelor of Arts degree (18 semester hours of a foreign language).

Master of Education Degree. The Master of Education degree is awarded upon completion of the requirements for the Master of Science degree, with the following exceptions: (1) a satisfactory field project (course 698) may be substituted for the thesis, and (2) a total of 30 credit hours shall be presented in addition to the field project.

The project is a study of a practical problem in the field of the candidate's interest as a teacher. The problem is selected and developed by the student, subject to the approval of his advisory committee. The finished report on the project should conform to the requirements for a thesis in matters of style, format, and manner of filing. It is recommended that a candidate complete not less than one year as a teacher before beginning the field project.

Master of Religious Education Degree. The Master of Religious Education degree is awarded upon completion of the requirements listed above and the special requirements listed under the Department of Religious Education.

TIME LIMIT

Graduate credits are applicable towards the master's degree only within a six-year period from the time they are received. Students are advised to complete their programs without notable interruption.

Doctor of Philosophy Degree

CLASSIFICATION OF DOCTORAL STUDENTS

Students seeking the Doctor of Philosophy degree are classified as **doctoral applicants** and **doctoral candidates**. The student must be admitted to degree-seeking status as a **doctoral applicant** at Brigham Young University at least by the time he registers for the last three semesters of full-time study intended to apply on the degree. The student is **admitted to candidacy** after meeting conditions for admission to candidacy and before registering for the last two semesters of full-time study intended to apply on the degree.

ADVISORY COMMITTEE

The student's program and his dissertation are developed under the direction and supervision of an advisory committee. The advisory committee for a student working for the Doctor of Philosophy degree consists of at least three members. These members are nominated by the student from the graduate faculty of his major or minor fields in consultation with the chairman of his major department and with the approval of the dean of the Graduate School. The chairman of the advisory committee is a representative of the major field. All work which is to apply toward the Doctor of Philosophy degree must be approved by the advisory committee.

As soon as his program of study is determined in consultation with the advisory committee, the student should supply each member of the committee with a copy of the program, and he should file a copy, which is signed by the committee members, with the Graduate School Office.

The membership of the advisory committee may be changed with the approval of all members of the newly constituted committee, the chairman of the major department, and the dean of the Graduate School. After such a change the student reviews his entire program with the new committee.

ACADEMIC REQUIREMENTS

The Doctor of Philosophy degree is awarded for distinguished attainment in a recognized field of learning, not merely for the completion of courses of study. The student must select a major field of study and at least one minor or supporting field approved by the department chairman and the dean of the Graduate School. Specific requirements in these fields are described by the departments. The equivalent of a minimum of three years of full-time study beyond the bachelor's degree is required, with a maximum of two semesters of work toward the master's degree applicable in the doctoral program upon the approval of the student's advisory committee. Full-time study is defined as twelve to sixteen hours in course work or the equivalent in research per semester. The advisory committee has authority to decide what work will be accepted to meet these requirements, and may accept or require up to two years of full-time study elsewhere. Two years, including the last, must usually be at Brigham Young University.

LANGUAGE REQUIREMENT

Before completing his comprehensive examinations and being admitted to candidacy, the student must present satisfactory evidence of proficiency in two foreign languages, one of which must be French or German. The selection of both required languages will be made in consultation with the student's advisory

committee. In exceptional cases, the student may petition the Graduate Council to substitute another language for French or German.

The language examinations are given during the months of October, April, and July, the last Thursday of the month at 4:00 p.m. in room 313 McKay. Doctoral applicants wishing to take the examination must apply to the Graduate School for admission to the examinations two weeks in advance of the scheduled date.

The language examination is administered by the Language Department in agreement with the department in which the student is majoring. If the student is not prepared to pass examinations in both languages at entrance, on his application for admission he must satisfy the dean that he is taking the necessary steps to do so promptly.

COMPREHENSIVE EXAMINATION

The student must pass a comprehensive examination on his doctoral fields under the direction of his advisory committee. This examination will normally be given at the end of the second year of graduate study.

ADMISSION TO CANDIDACY

Satisfactory completion of the comprehensive examination and the language requirement is necessary for admission to candidacy for the Doctor of Philosophy degree. The student has the responsibility of filing with the dean of the Graduate School a form, provided by the Graduate School Office and signed by his advisory committee and the chairman of his major department, stating that all conditions for admission to candidacy have been met and that his dissertation subject has been approved.

Notice by the dean of the Graduate School then admits the student to candidacy for the degree. This will normally be done after the completion of two years of graduate work. At least two semesters of full-time study must be completed after admission to candidacy and before graduation.

DISSERTATION

After being admitted to candidacy, the student carries out original research for an acceptable dissertation under the direction of his advisory committee. Four copies of the dissertation must be filed in the Graduate School Office at least fifteen days prior to the final examination and thirty days prior to graduation. At the same time, six copies of an approved abstract of not more than 600 words must be submitted. The student also furnishes the University with fifteen reprints of his dissertation or arranges for its microfilming.

FINAL EXAMINATION

Not later than fifteen days before graduation, the student must pass a final examination given by a committee of not fewer than five members. The committee consists of the advisory committee plus such other members as the dean of the Graduate School and the department chairman may designate.

TIME LIMIT

All requirements for the Doctor of Philosophy degree must be completed within nine years of the date on which the student applies for admission to degree-seeking status for that degree. In order for credit which exceeds this time limit to apply on the degree, such credit must be validated by special examination.

Doctor of Education Degree

ADMISSION REQUIREMENTS

For admission to degree-seeking status as a doctoral applicant, the student must possess certification as a teacher, must have completed two years of practical experience in education, and must possess demonstrable acquaintance with

the field of education. His competence will be ascertained by a qualifying examination covering work equivalent to twenty hours of credit. There is no special requirement as to how the student should obtain this background. The examination is given soon after the student applies for admission.

CLASSIFICATION OF DOCTORAL STUDENTS

Students seeking the Doctor of Education degree are classified as **doctoral applicants** and **doctoral candidates**. The student must be admitted to degree-seeking status as a **doctoral applicant** at Brigham Young University at least by the time he registers for the last three semesters of full-time study intended to apply on the degree. The student is **admitted to candidacy** after meeting conditions for admission to candidacy and before registering for the last two semesters of full-time study intended to apply on the degree.

ADVISORY COMMITTEE

The early advisement of the student, until he passes the qualifying examination, is supervised by the graduate committee of his college which assigns him a specific adviser in his major field.

When the student successfully passes the qualifying examination, he is given an advisory committee of at least four members. They are nominated by the student to his adviser, who in turn recommends the committee membership to the graduate committee of the college. The graduate committee then forwards its recommendation to the dean of the Graduate School who grants final approval. The chairman of the advisory committee must be in the student's major field, and there must be one member from each of his supporting fields. The chairman of the major department is a member *ex officio*. All work which is to apply toward the Doctor of Education degree must be approved by the advisory committee.

As soon as his program of study is determined in consultation with the advisory committee, the student should supply each member of the committee with a copy of the program, and he should file a copy, which is signed by the committee members, with the Graduate School Office.

The membership of the advisory committee may be changed with the approval of all members of the newly constituted committee, the chairman of the major department, the graduate committee of the college, and the dean of the Graduate School.

ACADEMIC REQUIREMENTS

The doctorate is awarded for distinguished attainment in a recognized field of learning, not merely for the completion of courses of study. The student must meet the departmental requirements of his chosen major field and the requirements established within his department and college in three supporting fields. The equivalent of a minimum of three years of full-time study beyond the bachelor's degree is required, with a maximum of two semesters of work toward the master's degree applicable in the doctoral program upon the approval of the student's advisory committee. Full-time study is defined as twelve to sixteen hours in course work or the equivalent in research per semester. The advisory committee has authority to decide what work will be accepted to meet these requirements, and may accept or require up to two years of full-time study elsewhere. Two years, including the last, must usually be at Brigham Young University.

One year must consist of two consecutive semesters on the campus of the University, during which the student takes one two-hour seminar each semester. There is no foreign language requirement, but the student must demonstrate proficiency in statistics to the satisfaction of the advisory committee.

COMPREHENSIVE EXAMINATION

The student must pass a comprehensive examination on his doctoral fields under the direction of his advisory committee. This examination will normally be given at the end of the second year of graduate study.

ADMISSION TO CANDIDACY

Satisfactory completion of the comprehensive examination is necessary for admission to candidacy for the Doctor of Education degree. The student has the responsibility of filing with the dean of the Graduate School a form, provided by the Graduate School Office and signed by his advisory committee and the chairman of his major department, stating that all conditions for admission to candidacy have been met and that his problem for the field project has been approved.

Notice by the dean of the Graduate School then admits the student to candidacy for the degree. This will normally be done after the completion of two years of graduate work. At least two semesters of full-time study must be completed after admission to candidacy and before graduation.

FIELD PROJECT AND REPORT

A field project for the improvement of a program of administration or instruction must be carried out under the direction of the student's advisory committee, after he has passed the comprehensive examination. The report of the field study must meet the same standards of format as the Doctor of Philosophy dissertation and must be submitted under the same schedule and requirements regarding publication.

FINAL EXAMINATION

Not later than 15 days before graduation, the student must pass a final examination on the field project and related matters. The examining committee consists of his advisory committee and such others as the department chairman and Dean of the Graduate School may designate.

TIME LIMIT

All work for the degree must be completed within nine years of the date on which the student applies for admission to degree-seeking status for that degree. In order for credit which exceeds this time limit to apply to the degree, such credit must be validated by special examination.

Scholarships, Assistantships and Fellowships

Fellowships and Scholarships. The University has established the following fellowships and scholarships for graduate students:

23 fellowships which provide for free tuition and remission of fees plus \$255 to \$1,500.

26 scholarships which provide for free tuition and remission of fees plus \$255 to \$2,000.

These scholarships and fellowships are awarded on the basis of high academic achievement and are available to students in all areas of graduate study. Recipients must possess a baccalaureate degree at the beginning of the period for which the scholarship or fellowship is granted and be candidates for a higher degree. Applications for the academic year beginning in September should be filed by the preceding March 1. Application forms may be obtained from the office of the Committee on Scholarships and Fellowships.

Teaching and Laboratory Assistantships. Many departments employ graduate students as teaching or laboratory assistants. Assistantships are awarded on the basis of scholastic accomplishment and competence for service. Remuneration is based on the time which is devoted to teaching duties. The stipends vary from \$750 to \$1,800 per year, not including tuition and fees. Application forms and detailed information may be obtained by writing to the chairman of the department in which the applicant wishes to become an assistant.

Research Assistantships and Fellowships. A substantial number of research assistantships and fellowships are available at Brigham Young University. Recipients work part time under the supervision of a faculty member on research projects which are supported by university, government, or private sources. The awards vary from \$1,200 to \$2,500 per school year, depending upon the type of

research and the amount of time devoted to it. Students interested in appointments to research assistantships or fellowships should direct inquiries to the director of research or to the chairman of the major department.

Summer Sessions

Graduate students who do a part of their work at the University during the summer will find a wide range of graduate courses suited to their purpose. Summer School is divided into two terms so that students may attend only part of the summer if they desire. Graduate students may register for a maximum of six credit hours per term.

Library Facilities

In relation to present size, the Brigham Young University has one of the ten fastest growing university libraries in the United States.

The new library is expected to be completed the summer of 1961. It will have a capacity of one million volumes and will be one of the largest university libraries in the world.

With the growth in the number of volumes an effort is being made to acquire those library tools necessary to a graduate research program. A well trained staff is available to assist scholars in the use of the book collection, and to interpret the specialized bibliographies, catalogs, guides, and indexes.

The Heber J. Grant Library contains the general book collection including over 250,000 bound volumes, several thousand pamphlets, and an extensive collection of titles on microfilm and microcards. Over 3,000 periodicals are received regularly.

Special Libraries. The library for Physical Sciences and Engineering is on the main floor of the Carl F. Eyring Science Center. The Life Sciences Library—including Biological and Agricultural Sciences, Nursing and Home Economics—is in the west basement of the Family Living Center. The Phonograph Record Library is in room 3263 of the Family Living Center.

The facilities of the LDS Genealogical and Historical Library in Salt Lake City, which contains over 500,000 titles, are also available by special arrangement, as are collections of Utah and Mormon materials in the LDS Church Library in the same city.

University Fees

Although these figures are as accurate as possible at the time of the printing of this catalog, the University must reserve the right to change them without notice.

General Fees

REGULAR COLLEGE AND GRADUATE STUDENTS:

	1st Semester	2nd Semester	Total
Tuition	\$ 90	\$ 90	\$180
Building, gymnasium, student activity and health fees	40	40	80
	<u>\$130</u>	<u>\$130</u>	<u>\$260</u>

SPECIAL COLLEGE AND GRADUATE STUDENTS:

	Tuition	General Service*	Total
Minimum fee	\$22.50	\$ 4.50	\$27.00
Three credit hours	30.00	6.00	36.00
Four credit hours	37.50	7.50	45.00
Five credit hours	45.00	9.00	54.00
Six credit hours	52.50	10.50	63.00
Seven credit hours	60.00	12.00	72.00
Eight credit hours	67.50	13.50	81.00
Nine credit hours	75.00	15.00	90.00

*The general service fee does not include health service or student activity privileges.

The charge for auditing courses is the same as taking them for credit.

All graduate students who continue to use University services or facilities (including consultation with a major professor in the process of writing) must register under a research number each semester, if not registered for regular courses. The minimum registration fee will be required each semester for this registration.

PAYMENT OF FEES

All students who register will be expected to pay full tuition and fees prior to or at the time of registration.

Included in the payment of tuition is a \$10 deposit which is not refundable, even in the event that the student does not complete registration or attend school. For special students (those who do not carry ten or more hours) the non-refundable deposit will be \$5.

LATE REGISTRATION FEE

Late registration fees will be assessed all regular and special students for failure to complete registration on scheduled dates. (No exception is made regardless of reason for being late.)

Failure to complete registration on scheduled dates.

1. First five regular school days following the scheduled registration date \$ 5.00
2. After the fifth day following scheduled registration date 10.00

Late fees for special students will be assessed at 50 per cent of the rate for regular students.

Any student whose check is not honored by his bank will be charged the late fee in effect at the time the check is redeemed.

MISCELLANEOUS GENERAL FEES AND FINES

Graduation fee, master's or doctor's degree (includes printing of thesis abstract)	\$20.00
Late application for graduation fee (for those who apply after January 15 for June Commencement and after March 15 for August Commencement)	3.00
Identification photo50
Change of registration fee, for each change slip presented after the first week of each semester	1.00
Change of grade fee (unless the change is the responsibility of the University)	3.00
Examination, special equivalency, per credit hour (the maximum fee in any one subject shall not exceed \$45)	7.50
Duplicate activity card	1.00
Transcript fee	1.00
(\$1.00 for first copy on every order, plus \$.50 for each additional copy)	
Automobile registration and parking fee:	
Beginning of school year	5.00
Beginning of Second Semester	3.00
Traffic violation fines	1.00 to 5.00
Thesis binding (4 copies)	11.00 to 13.00
Registration in Evening School. (All daytime students will be required to pay an additional fee of \$2 per credit hour for all hours carried under the Evening School Program.)	

FEES FOR INSTRUCTION IN MUSIC AND SPEECH

For fees in special private instruction in music and speech see the General Catalog.

RENTALS

Woodwind, brass, and string instrument rental per instrument, per semester	\$12.00
Harp, harpsichord, organ rental, one hour each day, per semester	15.00
Piano rental, one hour each day, per semester	7.50
Each additional hour per day, per semester	6.00
Practice room without a piano, one hour each day, per semester	4.50
Each additional hour per day, per semester	3.00
Locker rent (McKay Building and Eyring Science Center):	
1 semester	1.50
2 semesters	2.50
2 semesters and summer term	3.00
Key deposit	1.00
Replacement of lost key	1.50

DEPOSITS

Gymnasium towel check and padlock deposit (Maximum refund is \$2.50)	\$ 3.00
Botany 550 (Plant Physiology)	2.00
Botany 706 (Experimental Ecology)	2.00
Botany 712 (Plant Nutrition)	2.00
Chemistry (each laboratory class)	1.00

Student Personnel Services

The Student Personnel Services offices are responsible for the welfare of students in the following areas of University life:

Academic Standards
Counseling Service
Financial Aids
Foreign Students
Health Services
Indian Students
Orientation
Scheduling

Scholarships, Fellowships and
Academic Grants
Security and Traffic
Student Employment and Placement
Student Housing
Student Organizations and Social
Life
Student Publications
Women's Activities

Dean of Students

The Dean of Students is director of the Student Personnel Services. As such, he is expected to coordinate the agencies at work on student problems. He initiates and recommends to the President and the University Council needed policies and procedures in student life. It is his responsibility to administer the program recommended or approved by the President in the various areas of the Student Personnel Services.

Counseling Service

The administrative officers at Brigham Young University are well aware that new students are faced with many problems as they begin their college life. The primary function of the Counseling Service is to help normal students to make realistic decisions regarding their college careers. All entering students are expected to make an appointment with a counselor so that they may avail themselves of professional assistance. This organization provides the following services for the University: (1) counseling—educational, vocational, and other personal problems; (2) psychiatric; (3) testing; (4) occupational information; and (5) help with study and reading skills. The Counseling Service also coordinates the University Tutoring Program.

Counseling. The counselors offer assistance to each individual student, helping him to make wise decisions in connection with educational, vocational, and personal problems. The mature student will accept responsibility for the decisions arrived at in such counseling sessions.

Psychiatric Service. Limited psychiatric service is available for students with serious emotional problems. A psychiatric team composed of a psychiatrist, clinical psychologist, and a psychiatric social worker is available to make evaluations and recommendations concerning treatment. Limited psychiatric treatment is available for students who can be treated in a university setting. Such treatment is not available to all students, and referrals are often made to private agencies either in Utah or in the students' home towns. As in the case of all other counseling done in the Counseling Service, psychiatric treatment is completely confidential.

Testing. Tests of achievement, ability, interest, and adjustment are given to all new lower-division students. The data from these tests are used as a basis for counseling in educational, occupational, and personal problems. Although the basic tests are given to all new lower-division students, upper-division and graduate students may avail themselves of the tests. The testing service provides psychological test data for the use of counselors and registration advisors, placement tests for various academic groups at the University, and assistance in the preparation, administration, and scoring of subject-matter tests as requested by various departments in the University.

Occupational Information. A comprehensive, current collection of essential occupational information is maintained in the Counseling Service Library. Current catalogs of the major universities and technical schools are also on file.

These materials are available to all students seeking information about particular vocational opportunities or information about employment in general.

Study and Reading Skills. A study skills laboratory, available to all students, is maintained for the improvement of study habits. Remedial reading groups are formed each semester to assist students who have difficulty reading college materials. Emphasis in the reading groups is placed on improving the student's general reading ability, not on speed alone. Application for membership in these groups is initiated by contacting the Counseling Service receptionist. Reading materials and equipment are also available to help the student increase his ability to read. (English 20 and Psychology 10 provide additional help, and a non-credit class in developmental reading is offered each semester by Adult Education and Extension Services.)

Foreign Students Adviser

Services of the foreign students adviser are available to all students from countries outside of the United States. All alien students are expected to clear with him. Foreign students coming to the University should report first to room 216, Temporary Office Building No. 2, which is the office of the adviser to foreign students.

Student Employment

In the Placement Bureau, assistance is given to students in finding part-time employment. This includes help not only in placing students in positions on the University campus but also in finding part-time employment off campus and in finding work for board and room.

Students are encouraged not to attempt to earn their entire way through school. Such a program leaves little time for academic work (see scholarships). Furthermore, it is important to note that there is a maximum limit on the number of hours which a student may work on campus.

Students are urged to register with the Placement Bureau as soon as possible after they arrive in Provo and are available for work. Factors which weigh most heavily in deciding who shall receive leads for jobs are need, hours available, and possession of skills required by employers. Inasmuch as the number of students seeking part-time work is very high, those whose need is great are requested to report regularly at the Placement Bureau after filing their initial applications.

Students from foreign countries are required to obtain a work permit before they may take employment. Such students may receive assistance in obtaining the necessary permit from the foreign students adviser.

Other Student Personnel Services

Graduate students are entitled to all of the advantages of the Student Personnel Services as listed in the General Catalog. Being a major part of the University community, they are expected to meet University standards required of undergraduate students at Brigham Young University.

Student Housing

Approved Housing

All students attending the University who are not living at home are required to live in University approved housing and to keep the University informed of any change of residence. Change of address cards are available in all housing offices and at the Information Booth.

Rental Agreements

Students planning to live either in campus housing or in off-campus residential housing may expect to sign a rental agreement for the accommodations they will occupy. Students should be prepared to live by the terms of these agreements once they have signed them. Many misunderstandings and financial losses can be avoided by students if they will read and familiarize themselves with the terms of the agreement before signing. All campus accommodations are available on an annual basis only.

Time of Arrival

Residence halls are not open to students prior to the announced opening date, usually the day before Freshman Orientation, or September 20. The University does not advise students who are going to live in campus housing to arrive before that date. It is unwise for students with nothing to do to live in hotels and motels where there is no University supervision.

Through the listings available from the Residential Housing Office, accommodations in the community may be obtained in a comparatively short time. Very little time is required for a student to unpack and get settled whether it be on or off campus. It is best to arrive during office hours—8:00 a.m. to 5:00 p.m.

Campus Housing

The Office of Student Housing, under the Director of Student Housing, is established to assist students with their needs for lodgings. It is located in the Herald R. Clark Student Service Center. All inquiries or administrative problems relating to housing needs should be referred to this office.

Applications

Students who enroll at the University and who wish to live in University residence halls should make inquiry at the earliest possible date to the Office of Student Housing. A housing application form will be sent upon request. A \$10.00 application fee should be enclosed with the completed application form when it is returned to the Office of Student Housing. Residence hall assignments and appropriate "agreement forms" are prepared on a basis of the date of receipt of the application form by the Housing Office.

Acceptance

The validating of any campus housing reservation is contingent upon the student's official acceptance and admission to the University.

Residence Halls for Women

Housing for 1,539 women is provided in 24 Heritage Halls. These are apartment-type buildings. Each apartment consists of a combination kitchen-dining-study room arrangement, three bedrooms, and a bath. In addition, there are large living rooms, a recreation room, head resident apartment, and laundry and storage facilities in each building. Six girls occupy an apartment and live co-operatively, preparing their own meals. The apartments are completely furnished except for bedding, kitchen utensils, and dishes. The facilities are ex-

cellent and offer a high standard of living for college students. The approximate annual rate for these accommodations is \$225.00. Food is purchased co-operatively by the residents of each apartment.

Help in the homemaking experiences of budgeting, buying, meal planning, and the selection, care, and construction of clothing is available from specialists who are assigned to Heritage Halls. In addition, a specialist is available to assist students in planning social activities, developing recreational skills, and learning wise use of leisure time.

The University operates four residence halls for women where board and room are provided. These four halls—Amanda Knight Hall, Knight-Mangum Hall, Budge Hall, and Merrill Hall—house 886 students. The halls, completely furnished, provide every modern convenience, including well-planned food service. A trained head resident lives in each hall. The approximate annual rate for these accommodations is \$540.00.

Each woman student who desires to live on campus should consider carefully the type of accommodations desired in view of her economic needs, time available for activities within her housing situation, and type of experience desired. Agreements are made for the year, and moving from one type of accommodation to another during the year cannot be arranged.

Residence Halls for Men

Board and room services for 72 men are provided in a traditional type residence hall, Allen Hall, located one block from the campus. It provides sleeping rooms, dining hall, living and social room, study room, head resident apartment, and adequate laundry and storage rooms.

Board and room services for 1170 men are provided in six new buildings known as Helaman Halls. These buildings form a beautifully designed residence hall development. There are five residence hall buildings conveniently grouped around an attractively planned and developed central building. Each residence hall accommodates 234 students, with two men sharing each bedroom. In addition, living rooms, study rooms, central shower areas, recreational rooms, adequate laundry and storage facilities, and a head resident apartment are found in each building. These halls provide some of the best student living experiences offered on any university campus. The central building features spacious dining rooms and a snack bar, providing the excellent food service for which B.Y.U. is noted. This building also contains beautiful living rooms, recreational areas, administrative offices, and other management facilities such as mail rooms, gun storage areas, and laundry and dry cleaning pick up stations. The approximate annual rate for these accommodations is \$540.00.

Graduate Homes for Men

Board and room service for a limited number of single graduate men are available in large homes used exclusively for graduate students. They are adequately equipped and provide for the specialized needs of the graduate student. The approximate annual rate for these accommodations is \$540.00.

Apartments and Homes for Married Students

Family accommodations for 350 married couples and their children are provided in housing developments known as Wymount Village and Wyview Village.

Wymount Village consists of 200 apartments (efficiency, one-bedroom and two-bedroom). These buildings were acquired from the federal government and moved to their present site following World War II. The maximum monthly rental rate approximates \$40.00.

Wyview Village consists of 150 prefabricated homes purchased in 1956 from a federal government airbase and moved to a site adjacent to the campus. There are 100 two-bedroom and 50 three-bedroom homes. The monthly rental rates approximate \$45.00 for the two-bedroom and \$50.00 for the three-bedroom homes. Each family, in addition, pays for its own electricity.

Applications for apartments or homes are placed on the waiting list according to the size of the family needing accommodations. There is a six-month waiting list at the present time.

Note: The Residential Housing Office can assist married students to find

suitable apartments in the Provo community. Approximately 1,000 such units are available to married couples.

Residential Housing

In addition to the University Residence Halls, there is University approved student housing in private homes in the communities of Provo and Orem which consists of sleeping rooms, apartments, light housekeeping, and board and room arrangements. To receive University approval these facilities must meet certain minimum specifications. Students living off campus are expected to abide by the living standards for student housing.

Listings

Up-to-date listings of approved facilities are maintained by the Residential Housing Office, 1271 North 900 East, Provo, Utah. This office is established to assist students upon their arrival in Provo to find suitable quarters if they desire to reside off campus. It is impractical for students to make arrangement with landlords by mail as listings change daily and many landlords like to interview their prospective tenants.

Rates

Rates for residential housing accommodations vary with the type of service provided, and consequently only a general indication can be given here. Sleeping rooms rent from \$13 to \$20 a month. Apartment accommodations run from \$14 to \$25 per month per student. Board and room is available at \$50 to \$65 a month. Apartments for married students can be obtained at a rate of approximately \$45 to \$70 per month.

Food Service

Regular meal service is provided for students at five different cafeterias on the campus. Four of these are operated as part of the board and room service of residence halls. It is possible for students living off-campus to buy meal tickets at reduced prices and eat in one of these places. The fifth cafeteria is in the Joseph Smith Building where meals are served at reasonable prices on a cash basis.

The University operates three snack bars, one in the Joseph Smith Building, a second in the George Albert Smith Fieldhouse, and a third in the Helaman Halls Cannon Center. Food is available in them throughout the day. Food may be secured through vending machines located throughout the campus. Costs of meals and food service are kept as low as possible, consistent with sound operating management.

The University also operates a creamery where milk, ice cream, and other dairy products may be purchased by students and faculty at very reasonable prices. Students preparing their own meals find this service both desirable and economical.

List of Courses

General

Semester System. Commencing with the autumn term, 1960, courses of study at Brigham Young University will be offered on a semester basis rather than on a quarter basis as in the past. This Graduate Catalog of Courses contains information and course listings based upon the semester system.

It is felt that the semester system will benefit both present and prospective students by reducing administrative procedures and by increasing opportunity for effective learning.

Course Numbering System.

Course Number	Type of Course
1 to 99	Preparatory and remedial (non-credit)
100 to 299	Lower Division
300 to 449	Upper Division
500 to 599	Advanced undergraduate or graduate
600 to 799	Graduate

Credit Hour Designation. The three-number code for credit hours has the following significance:

First number:	Semester hours of credit
Second number:	Class hours of lecture, recitation, or seminar meeting per week or Minimum hours of individual study required per week
Third number:	Laboratory hours required per week or Hours of field study or individual research per week

Cross Referencing of Courses. Each course is listed completely only once in the catalog. If the course may count in another department, it appears in a special grouping at the end of the course listing for that department.

Inter-departmental Courses. In Family Living, Humanities, and Physical Science inter-departmental courses are taught. In the course listing which follows, these courses appear under the appropriate headings of Family Living, Humanities, and Physical Science rather than in a specific department.

Graduate Courses. Graduate credit is given for courses in the 500, 600, and 700 series if the student is registered in the Graduate School for these courses or if the student is a last semester senior and meets the Graduate School requirement for reserving these courses for graduate credit. No graduate credit is given for such courses with a grade lower than "C." No graduate credit is given for correspondence courses.

Reservation of Right to Change Courses. At the time of printing of this catalog, the University intends to give the courses listed herein, but reserves the right to eliminate or discontinue any of them or to add new courses.

Accounting

Professors: R. J. Smith (chairman, 217 TOB 5), Andersen.

Assistant Professor: Johnson.

Instructors: J. M. Smith, Western, White.

Requirements

A prospective major in this field must have as a minimum background Accounting 212, 302, and those classes prerequisite thereto or the equivalent thereof, and he should preferably have a full undergraduate major in the field. A student may be accepted for major study in this field when he has completed only Accounting 212, but, he would be required to complete 301 and 302 before taking any graduate work; these courses could not be applied on his master's program.

Advanced Undergraduate or Graduate Courses

- 501 (440, 570). Advanced Accounting.** (3:3:0) F. and alternate summers. Prerequisite: Accounting 302. Staff
Includes joint ventures, consignments, installments, receiverships, estates and trusts, statements of affairs, and municipal and government accounts.
- 502 (570). Advanced Accounting.** (3:3:0) S. and alternate summers. Prerequisite: Accounting 302. Staff
Home office and branch accounts and parent and subsidiary accounting.
- 515 (572). Controllership.** (3:3:0) S. Prerequisites: Accounting 302 and 512. Staff
Budgeting, standard costs, and cost analysis.
- 515 (572). Controllership.** (3:3:0) S. Prerequisites: Accounting 302 and 512. Staff
Organization of controller's office, control techniques, interpretation of financial data, and policy formulation.
- 521 (582). Advanced Tax Problems.** (2:2:0) S. Prerequisite: Accounting 420. Staff
Advanced study of federal income tax, estate and gift taxes, and special problems in corporate taxation.
- 555 (555). Advanced Data Processing.** (3:3:0) F. Prerequisite: Accounting 225. Staff
Principles governing design and installation of accounting systems and the selection of equipment for optimum performance in data processing cycles.
- 556 (556). Electronic Computer Programming.** (3:3:1) F.S. Prerequisite: Statistics 231. Recommended prerequisite: Accounting 255. Staff
Basic computer logic, binary notation, operational coding, flow charting, iterative routines, subroutines, library programs, optimum coding, symbolic coding, and data processing application.
- 557 (557). Advanced Computer Programming.** (2:1:2) S. Prerequisite: Accounting 556. Staff
Emphasis on the solution of practical problems in data processing. Individual work on the University's computer and comparison of various computers in current use.
- 565 (565, 571). Auditing and Professional Ethics.** (5:5:0) F.Su. Prerequisite: Accounting 302. Staff
Principles and methods of public accounting, professional responsibility and conduct, and verification techniques of accounts and financial statements, including report writing and filings with regulatory bodies.
- 575 (545). Theory of Accounts and Statements.** (3:3:0) F. Prerequisite: Accounting 201 or 211. Staff
A brief study of the history and development of accounting and financial statements, their meaning and interpretation. Problems in current accounting theory are considered.

- 586, 587 (586, 587, 588). **C.P.A. Problems.** (4:3:1 ea.) F.S. Prerequisites: Accounting 302, 420, and the following which should be taken before or concurrently: Accounting 501, 502, 565. Staff
Preparation for professional examination.
- 593 (593). **Reading and Conference.** (1-3:1-3:0) F.S.Su. Staff
Subject to be arranged with instructor.
- 596 (596). **Accounting Internship.** (1-3:0:Arr.) F.S.Su. Recommended prerequisite: Accounting 565. Staff
Internship must be arranged in advance with department and company.

Graduate Course

- 699 (699). **Thesis for Master's Degree.** (1-4:0:Arr.) F.S.Su. Staff

These courses also count in Accounting:

- Business Management** 588, 589. **Problems in Business Management.** (3:3:0 ea.)
Statistics 534. **Sampling Techniques.** (2:2:0)

Agricultural Economics

Associate Professor: Corbridge (chairman, 171 Brimhall).

Requirements

A graduate degree is not currently offered in agricultural economics, but graduate credit in the following courses may be applied toward a minor in a field closely related to agricultural economics.

Advanced Undergraduate or Graduate Courses

- 525 (525). **Production Economics.** (2:2:0) S. Prerequisite: Economics 112. Gardner
A study of principles concerning the optimum combination of productive resources within the farm firm and between firms.
- 580 (580). **Agricultural Policy.** (2:2:0) S. Gardner
The theoretical and institutional setting of the agricultural industry, the objectives of farm policy, and the means of achieving these objectives. Includes a study of existing and proposed farm legislation.
- 590 (590). **Seminar.** (1:1:0) S. Staff
- 595 (595). **Individual Readings.** (1-3:Arr.:Arr.) F.S. Staff
- 597 (597). **Individual Research.** (1-3:Arr.:Arr.) Staff

The following course also counts toward Agricultural Economics credit:
Statistics 531. **Experimental Design.** (2:2:0)

Agronomy

Professor: Farnsworth.

Associate Professors: Allred (chairman, 172 Brimhall), Hallam.

Requirements

Students preparing for graduate work in agronomy are urged to obtain a thorough knowledge of introductory physics, chemistry, mathematics, botany, bacteriology, and geology. Opportunity will be afforded for further study in some of these subjects after entering the Graduate School, but a student deficient in these foundation courses cannot expect to receive an advanced degree in the minimum time otherwise required.

The Agronomy Department has established the following minimum requirements for permission to study toward a master's degree:

Satisfactory completion of the following undergraduate courses or their

equivalents: Chemistry 111, 112, 113, 221, plus one year of upper division chemistry; Mathematics 111, 112, 213; Geology 111; Bacteriology 121; Physics 211, 213; Botany 101, 440. If a student is emphasizing crops, Botany 440 may be applied toward the graduate program and need not be completed as undergraduate work. If, however, this course has been taken as undergraduate work, more time will be afforded for graduate courses.

Advanced Undergraduate or Graduate Courses

- 503 (503). **Soil Chemistry.** (2:2:0) S. Prerequisite: Chemistry 221 or consent of instructor. Hallam
A physico-chemical study of soil colloids.
- 506 (506). **Soil and Plant Analysis.** (3:1:6) S. Prerequisites: Agronomy 305, Chemistry 220 or 221. Hallam
Laboratory chemical analysis of soils and plant materials; use of radioactive materials in soil fertility research; use, care and measurement of radioactive materials.

Graduate Courses

- 605 (605). **Chemistry of Soil-Plant Relationships.** (3:3:0) F. Hallam
607 (601). **Soil Physical Conditions.** (3:2:3) S. Staff
614 (614, 615). **Advanced Soil Microbiology.** (3:2:3) S. Prerequisites: Agronomy 305, Bacteriology 121, Chemistry 221. Hallam
659 (659). **Advanced Plant Breeding.** (2:2:0) F. Allred
694 (694). **Seminar.** (1:1:0) F.S.Su. Staff
697 (697). **Research.** (Arr.) F.S.Su. Staff
698 (698). **Agricultural Literature.** (Arr.) F.S.Su. Staff
699 (699). **Thesis for Master's Degree.** (1-4:Arr.:Arr.) F.S.Su. Staff

Animal Husbandry

Professors: Morris (chairman, 150 Brimhall), Cannon.

Associate Professors: Richards, Shumway.

Assistant Professor: Hoopes.

Requirements

A student contemplating graduate study in animal husbandry must have received his bachelor's degree in this field or have completed courses with an equivalent background. His undergraduate courses should have included approximately 35 hours taken from the following subjects or their equivalent of which twenty hours made up his minor:

Bacteriology 121, 321, 331, 371, 501.

Botany 101, 376.

Chemistry 102, 111, 112, 113, 221, 284, 351, 352, 581, 582.

Statistics 221, 431.

Zoology 365, 376.

The student may select his minor field from among the following areas: agricultural economics; bacteriology; botany; chemistry; education; zoology.

Advanced Undergraduate or Graduate Courses

- 507 (427, 477, 607). **Animal Nutrition.** (4:3:2) F. Morris
515 (515, 562). **Advanced Animal Breeding.** (3:3:0) S. Richards
560 (460, 564). **Advanced Dairy Production.** (4:3:3) S. Richards
571 (571, 572). **Advanced Poultry Practices.** (1-2:0:Arr.) F.S. Morris
592 (592, 593). **Seminar.** (2:2:0) S. Cannon
A critical review and analysis of current research, findings, and methods in animal agriculture.

Graduate Courses

601	(601).	Experimental Techniques and Design.	(2:2:0)	F.S.	Cannon
660	(660).	Advanced Livestock Management.	(2:1:3)	S.	Cannon
691, 692	(691, 692, 693).	Animal Husbandry Research.	(1-2:0:3-6)	F.S.	Staff
694, 695	(694, 695, 696).	Animal Husbandry Research.	(1-2:0:3-6)	F.S.	Staff
699	(699).	Thesis for Master's Degree.	(2-4:0:Arr.)	F.S.Su.	Staff

The following course also counts for credit in Animal Husbandry:

Statistics 531. Experimental Design. (2:2:0)

Archaeology

Professor: Jakeman.

Assistant Professor: Christensen (chairman, 203 ESC).

Emphasis and Areas of Specialization

The Department of Archaeology offers graduate work leading to the Master of Arts degree in this subject. Training emphasis is given the two fields of historic and late prehistoric archaeology which bear most upon the fundamental problem of the origin of civilization in the Old and New Worlds, and the important historical claims of the Hebrew-Christian and Latter-day Saint scriptures; namely, Near Eastern and Middle American-Andean. In addition to receiving some advanced training in both these fields (as connected by the fundamental problem and historical claims above indicated), as well as in archaeological methods, the graduate student will be able to begin specialization and research in one of the principal areas of these fields; namely, Irano-Mesopotamian and biblical, Egyptian and biblical, Syro-Palestinian and biblical, Mesoamerican (central and southern Mexican-northern Central American), or Peruvian (central Andean) archaeology, and in general comparative archaeology (comparative study of two or more of these areas, as called for by the fundamental problem and historical claims above indicated).

Requirements

Admission as a graduate major or minor in archaeology requires evidence of previous completion of an undergraduate minor in this subject. It is expected that graduate majors seeking the Master of Arts degree in archaeology will comply with all the general and special requirements for this degree as outlined by the Graduate School. The additional departmental requirements are: (1) the graduate major in archaeology required for the degree (at least 15 credit hours in courses of this department at the 500 and 600 levels) must include courses 500, 551, 571, and 590 (if not already taken for undergraduate credit), and 690, 695 or 696, and 699; and (2) the graduate minor also required for the degree (at least 10 credit hours at the 500 and 600 levels) must be in the Department of Biblical Languages, specifically either in Hebrew (courses 591 and 592, also if possible 593 and 691) or in a combination of Hebrew and one other biblical language of the Near East, either Hebrew and Akkadian (courses 591, 592, 793, and 794) or Hebrew and Egyptian (courses 591, 592, 795, and 796). The thesis (Archaeology 699), which may be either a field report or an interpretative study in the student's area of specialization, must present worthwhile new data or concepts for that area, must be of professional caliber, and must be suitable for publication.

Advanced Undergraduate or Graduate Courses

- 500 (601). History and Theory of Archaeology. (3:3:0) F. Prerequisites: Archaeology 310 and 360; recommended prerequisite: Archaeology 327.

Christensen

A survey of the development of archaeology as a science, and a study of the "culture-tradition" and "developmental-stage" concepts of archaeology as related to human culture-history.

- 551 (531, 551). **Methods of Archaeological Research: General and Field.** (4:0-2:8-4) Not given this year. Prerequisite: Archaeology 310. Christensen
The steps in an archaeological research project; and an introduction to field methods, stratigraphy, and typology, including student excavation of an Indian mound of Utah Valley.
- 571 (571). **Methods of Archaeological Research: Interpretative.** (3:3:0) Not given this year. Prerequisite: Archaeology 551. Christensen
Interpretation of empiric archaeological data as to culture meaning and represented culture units; methods of chronological interpretation; and practice in archaeological ethnography and historiography.
- 590 (596, 597, 598). **Recent Developments in Archaeology.** (4:2:6) S. Prerequisites: Archaeology 310, 318 or 327, 440 or 480, and 500. Jakeman
Includes individual reports in two of the following fields: Near Eastern-biblical (Mesopotamian, Egyptian, or Syro-Palestinian), Mediterranean (Aegean, classical, or Christian), Northern European, Eastern Asiatic, Mesoamerican, Andean, North American.

Graduate Courses

The emphasis of these courses is on the two fields of historic (and late prehistoric) archaeology bearing upon the fundamental problem of the origin of civilization in the Old and New Worlds, and the important historical claims of the Hebrew-Christian and Latter-day Saint scriptures; i.e., Near Eastern and Middle American-Andean archaeology.

- 631 (671, 672). **Introduction to the Reading of Maya and Aztec Hieroglyphics.** (3:1:6) Not given this year. Prerequisite: an undergraduate minor in archaeology. Jakeman
- 641 (590). **Museum Methods and Teaching of Archaeology.** (3:1:6) F. Prerequisite: an undergraduate minor in archaeology. Christensen
In-service training in archaeological museum methods and in the teaching of archaeology.
- 651 (590, 621, 631). **Advanced Field Methods of Archaeology.** (5:0:15) S. Prerequisites: an undergraduate minor in archaeology and course 551. Staff

Further in-service training in archaeological field methods as a member of one of the Brigham Young University archaeological expeditions to Mexico or Central America.

- 690 (594). **Seminar in Historical Archaeology.** (2:2:0) Not given this year. Prerequisites: an undergraduate minor in archaeology and course 590. Jakeman

Problems in historic archaeology, particularly the archaeology of the scriptures.

- 695 (650, 655). **Library Research in Near-Eastern Archaeology.** (2:0:6) Not given this year. Must be taken concurrently with Archaeology 690. Staff
Independent library research in oriental or biblical archaeology (Mesopotamian, Iranian, Egyptian, Syro-Palestinian, general oriental, or general biblical) or the archaeology of the Pearl of Great Price.

- 696 (660, 665). **Library Research in Middle American-Andean Archaeology.** (2:0:5) Not given this year. Must be taken concurrently with Archaeology 690. Staff

Independent library research in Middle American or Andean archaeology (Mesoamerican or Peruvian archaeological and chronicled history, Mesoamerican hieroglyphic decipherment, or research in the origin of the Middle American-Andean civilizations).

- 697 (695, 696). **Field Research.** (5-10:0:15-30) S. Prerequisites: Archaeology 590 and 651 (latter may be taken concurrently). Staff

Participation in an archaeological excavation in Near Eastern-biblical or Mesoamerican-Book of Mormon lands, with opportunity for independent field research at the same or a nearby site.

- 699 (699). **Thesis for Master's Degree.** (1-4:Arr.:Arr.) S.Su. Prerequisites: Archaeology 571 and 695, 696, or 697. Staff

Art

Professors: Andrus (chairman, 315 E), de Jong.

Associate Professors: Gunn, Turner.

Assistant Professor: Wilson.

Fields

1. Painting and Sculpture.
2. Design (Crafts, Commercial Art, Printmaking, Interior Design).

Requirements

Students who expect to major in painting and sculpture or design should have an adequate background of basic drawing, elementary design, and twenty semester hours of upper division work, including art history. A student may take both his major and minor in the Department of Art. If a student is deficient in foundation training, opportunity may be given to correct this deficiency after he enters Graduate School.

Advanced Undergraduate or Graduate Courses

- 501 (501). **Aesthetics.** (2:2:0) S. de Jong
Theoretical and practical criteria of aesthetic values.
- 544 (544, 545). **Portfolio Preparation.** (2:3:0) F. Prerequisites: Art 122, 239, 341, 342. Gunn
An analysis of individual strengths and weaknesses. Specialization opportunities provided in various areas of commercial design and display. Preparation of portfolio emphasized.
- 546 (545, 546). **Advanced Commercial Art.** (3:4:0) S. Prerequisite: Art 544. Gunn
Professional standards in a specialized field of commercial art emphasized. Students judged proficient by a faculty committee are given experience in a practicing agency.
- 580 (580, 581). **Mural Painting.** (2:4:0) F. Prerequisites: Art 310, 321 or 322. Darais
Historical backgrounds, design, and execution of murals.
- 582 (581, 582). **Mural Painting.** (2:4:0) S. Prerequisites: Art 310, 321 or 322. Darais
Historical backgrounds, design, and execution of murals.
- 586 (586, 587). **Studio Art.** (1-3:2-4:2-4) F.Su. Prerequisite: permission of department chairman. Staff
- 588 (587, 588). **Studio Art.** (1-3:2-4:2-4) S. Prerequisite: permission of department chairman. Staff

Graduate Courses

- 615 (615, 616). **Period Furnishing and Other Decorative Material for Interior Design.** (3:3:0) F. Taylor
- 617 (616, 617). **Practical Problems in Interior Design.** (3:3:0) S. Taylor
- 621 (621, 623). **Advanced Drawing and Painting.** (1-3:Arr.:Arr.) F. Andrus
- 622 (622, 623). **Advanced Figure Drawing and Painting.** (1-3:Arr.:Arr.) S. Andrus
- 624 (624). **Advanced Landscape Painting.** (1-3:Arr.:Arr.) F. Turner
- 625 (625, 626). **Advanced Still Life Painting.** (1-3:Arr.:Arr.) S. Turner
- 627 (627). **Pictorial Composition.** (1-3:Arr.:Arr.) F. Turner
- 629 (628, 629). **Pictorial Design.** (1-3:Arr.:Arr.) S. Turner
- 633 (633, 634). **Advanced Water Color Painting.** (1-3:Arr.:Arr.) F. Turner
- 635 (635). **Advanced Aqueous Painting Media.** (1-3:Arr.:Arr.) F. Turner
- 639 (639). **Advanced Layout.** (1-3:Arr.:Arr.) F. Gunn

642	(642). Advanced Illustration. (1-3:Arr.:Arr.) S.	Gunn
650	(650, 651). Advanced Relief and Intaglio Printmaking. (1-3:Arr.:Arr.) F.	Andrus
652	(651, 652). Serigraphy and Color Lithography. (1-3:Arr.:Arr.) S.	Andrus
656	(656, 657). Advanced Sculpture. (1-3:Arr.:Arr.) F.	Wilson
658	(657, 658). Advanced Sculpture. (1-3:Arr.:Arr.) S.	Wilson
665	(665). Advanced Ceramics. (1-3:Arr.:Arr.) F.S.	Wilson
666	(666). Advanced Metal and Jewelry Design. (1-3:Arr.:Arr.) F.S.	Johansen
668	(668). Teaching Art in Secondary Schools. (1-3:Arr.:Arr.) S.	Staff
671	(671). Survey of Recent Studies in Art Education. (1-3:Arr.:Arr.) F.	Gunn
674	(674, 675). Advanced Portrait Painting. (1-3:Arr.:Arr.) F.	Andrus
676	(675, 676). Advanced Figure Painting. (1-3:Arr.:Arr.) S.	Andrus
680	(680, 681). Advanced Mural Design and Painting. (1-3:Arr.:Arr.) F.	Darais
682	(681, 682). Advanced Mural Design and Painting. (1-3:Arr.:Arr.) S.	Darais
686	(686, 687). Studio Art. (1-3:Arr.:Arr.) F.	Staff
688	(687, 688). Studio Art. (1-3:Arr.:Arr.) F.	Staff
690	(690, 691). Color. (2:2:0) F.	Andrus
692	(691, 692). Color. (2:2:0) S.	Andrus
695	(695). Seminar. (1:1:0) F.S.	Staff
699	(699). Thesis for Master's Degree. (1-4:Arr.:Arr.) F.S.	Staff

Bacteriology

Professor: Beck.

Associate Professors: Donaldson (chairman, 173 Brimhall), Larsen.

Assistant Professors: Hoskisson, Sagers.

Requirements

Adequate preparation for graduate work in the Department of Bacteriology presupposes satisfactory training in the physical and biological sciences. If a student is deficient in foundation courses, opportunity will be given after entering Graduate School to correct these deficiencies. However, such a student will not be able to receive the advanced degree in the minimum time required of more qualified candidates. Prior to acceptance as a graduate major in the Department of Bacteriology, credit will be evaluated with particular emphasis placed on the applicant's training in qualitative, quantitative, organic, and biological chemistry; mathematics; zoology; botany; and physics.

Advanced Undergraduate or Graduate Courses

501 (501). Pathogenic Microbiology. (4:2:6) S. Prerequisite: Bacteriology 331 or consent of the instructor. Larsen

A study of the characteristics of pathogenic bacteria, viruses, rickettsia, yeasts, and molds.

502 (502). Pathogenic Microbiology. (2:1:3) F. Prerequisite: Bacteriology 501. Larsen

Continuation of Bacteriology 501.

511 (511). Immunology. (3:2:3) F. Prerequisite: Bacteriology 501 or consent of instructor. Donaldson

Theories of immunity; training in serological methods.

- 521 (521). **Industrial Microbiology.** (2:2:0) F. Prerequisites: Bacteriology 331 and biochemistry. Larsen
The role of microorganisms in the production of such products as acids, alcohols, antibiotics, vitamins, and enzymes.
- 522 (522). **Industrial Microbiology Laboratory.** (1:0:3) F. Prerequisite: concurrent or previous registration in Bacteriology 521. Larsen
- 531 (531). **Virology.** (2:2:0) S. Prerequisite: Bacteriology 501. Staff
Characteristics of viruses and virus diseases.
- 532 (532). **Virology Laboratory.** (1:0:3) S. Prerequisite: concurrent or previous registration in Bacteriology 531. Staff
- 541 (541). **Cultivation and Nutrition of Bacteria.** (2:0:6) S. Prerequisite: Bacteriology 301. Sagers
A laboratory study of selective enrichment techniques, fundamental nutritional requirements and growth properties of the major taxonomic groups of bacteria.
- 551 (551). **Advanced Microbiology.** (2:2:0) F. Prerequisite: Bacteriology 331. Beck, Sagers
- 552 (552). **Advanced Microbiology Laboratory.** (1:0:3) F. Prerequisite: concurrent or previous registration in Bacteriology 551. Beck, Sagers
- 561 (561). **Radioactive Tracer Techniques in Biology.** (2:0:6) F. Prerequisite: consent of instructor. Beck
- 581 (581). **History of Bacteriology.** (1:1:0) F. Prerequisite: senior or graduate status. Larsen

Graduate Courses

- 611 (611). **Advanced Immunology.** (2:2:0) S. Prerequisite: Bacteriology 511. Donaldson
- 651 (651). **Bacterial Metabolism.** (2:2:0) S. Prerequisite: Bacteriology 551. Beck
- 652 (652). **Bacterial Metabolism Laboratory.** (2:0:6) F. Prerequisite: concurrent or previous registration in Bacteriology 651. Beck
- 661 (661). **Bacterial Genetics.** (2:2:0) F. Prerequisites: Bacteriology 331, a course in general genetics, and Chemistry 581, 582, 583, or equivalent. Sagers
A study of genetic processes in bacteria and viruses, with special emphasis on recombination, transduction, mutation, replication mechanisms, and related topics.
- 691 (691). **Graduate Seminar.** (1:1:0) F.S. Staff
- 695 (695). **Research to Furnish Data for Thesis.** (1-10:Arr.:Arr.) F.S. Staff
- 699 (699). **Thesis for Master's Degree.** (1-4:Arr.:Arr.) F.S.

The following course also counts in Bacteriology:

Agronomy 614 (614, 615). **Advanced Soil Microbiology.** (3:2:3)

Bible and Modern Scripture

Professors: Done, Sperry, Yarn.

Associate Professor: Ludlow (chairman, 13 PHP).

Assistant Professors: Anderson, Andrus, Barron, Clark, Patch, Pearson, Rasmussen, Ricks, Turner.

Instructor: Meservy.

Requirements

The Department of Bible and Modern Scripture offers training leading to the Master of Arts, Master of Science, and Doctor of Philosophy degrees. A student must have adequate preparation on the undergraduate level before begin-

ning work leading to one of these degrees. The admissions committee of the graduate faculty of religion will determine if the student is properly prepared.

Each graduate student must fill all the general regulations and requirements for advanced degrees as outlined by the Graduate School. The responsibility of knowing and fulfilling these regulations and requirements rests with the student.

A statement of detailed requirements and procedures of the graduate program in religion may be obtained upon request from the dean of the College of Religious Instruction.

Master's Degree

Before a student is admitted on a degree-seeking basis, the admissions committee of the graduate faculty of religion will carefully study and evaluate his preparation and fitness for a graduate program. After acceptance, the student must select his advisory committee, in consultation with the admissions committee, and must acquire at least 15 semester hours of formal course or seminar work in his major field and 10 semester hours of formal course or seminar work in his minor field; write an acceptable thesis embodying the results of research under faculty supervision; and successfully pass an oral examination.

Doctor of Philosophy Degree

The student must achieve a thorough mastery of his major, minor, and related fields, a program which will require a minimum of 90 semester hours credit. Part of this requirement may be fulfilled in the completion of the "core" courses listed below.

All doctoral candidates must have an adequate knowledge of at least two foreign languages which will assist them in graduate studies, one of which must be German or French. One foreign language is required before admission to the doctoral program. Upon completion of the "core" requirements with distinction ("B" grade or better), normally two years, a student must pass a series of written comprehensive examinations and an oral examination on the subject-matters represented in the "core" courses. The student will not be awarded the Ph.D. degree until at least two semesters following the successful completion of these examinations. Should the student fail the examinations, the question of whether or when he may repeat them will be determined by his advisory committee in consultation with the admissions committee. The comprehensive examinations may not be attempted more than twice. In addition to the "core" requirements the student will be expected to complete at least 30 hours of specialization in his major and minor fields.

When a student successfully completes his language requirements, his written and oral comprehensive examinations, and the presentation of his dissertation topic, he is certified by the dean of the Graduate School as an official candidate for the doctor's degree. Having selected his topic in consultation with his advisory committee, he must write a satisfactory dissertation embodying the results of original research. Thereafter, the candidate must defend his dissertation before a formally appointed committee.

"Core" Courses: Bible and Modern Scripture (Bible) 411, 501, 502, 503, 511, 512; (Modern Scripture) 527, 621, 624; History and Philosophy of Religion (Church History) 441, 442, 645, 646; (Christian History) 451, 452; (World Religions) 555, 556, 657, 658; (Philosophy) 480, 580, 581, 583, 584; Religious Education 530, 670.

Advanced Undergraduate or Graduate Courses

- | | | |
|-----|--|----------------------------|
| 501 | (304). Analysis of the Old Testament: The Pentateuch and Historical Books. (3:3:0) F.S.Su. | Meservy, Rasmussen, Rogers |
| 502 | (603). Analysis of the Old Testament: Prophetic Books. (2:2:0) F. | Meservy, Rasmussen, Rogers |
| 503 | (606). Analysis of the Old Testament: Poetic and Wisdom Literature. (2:2:0) S. | Meservy, Rasmussen, Rogers |

- 511 (624). **Paul's Life and Letters.** (2:2:0) F.
Bentley, Patch, Ricks, Rogers, Sperry, Turner
- 512 (625). **The General Epistles and the Apocalypse.** (2:2:0) S.
Bentley, Patch, Ricks, Rogers, Sperry, Turner
- 513 (622). **New Testament Times.** (2:2:0) S.Su. Patch, Ricks, Sperry
- 527 (653). **History and Doctrines of the Pearl of Great Price.** (2:2:0) F.S.Su.
Andrus, Clark

Graduate Courses

- 601 (602). **History of the Hebrews.** (3:3:0) F.S.
Meservy, Rasmussen, Rogers, Sperry
- 604 (601). **The Literature of the Old Testament.** (2:2:0) F.S.
Meservy, Rasmussen, Rogers, Sperry
- 605 (604). **Canon and Text of the Old Testament.** (2:2:0) S. Staff
- 606 (605). **The Apocrypho and Pseudepigrapha.** (2:2:0) S.Su. Nibley
- 607 (619). **Religion of the Old Testament.** (2:2:0) F.Su. Staff
- 608 (607). **Cultural and Religious Patterns of the Ancient Near East.** (2:2:0)
S.Su. Sperry
- 610 (621). **Early Christian Literature.** (2:2:0) F.Su. Staff
- 611 (626). **Formation of the New Testament: Text and Canon.** (2:2:0) S.Su.
Patch, Ricks, Sperry
- 612 (627). **Textual Criticism of the New Testament.** (2:2:0) S. Su. Staff
- 621 (524). **Analysis of the Book of Mormon.** (3:3:0) F.S.Su.
Ludlow, Ricks, Sperry
- 624 (652). **Analysis of the Doctrine and Covenants.** (2:2:0) F.S.Su.
Andrus, Doxey
- 627 (592). **Seminar: Pearl of Great Price.** (2:2:0) F.S.Su. Andrus, Clark
- 699 (699). **Thesis for Master's Degree.** (1-4:Arr.:Arr.) F.S.Su. Staff
- 709 (590). **Seminar: Old Testament.** (2:2:0) F.S.Su. Staff
- 710 (649). **Seminar: New Testament.** (2:2:0) F.S.Su. Staff
- 711 (641). **Readings in Greek: The Gospel and Acts.** (3:3:0) F. Prerequisite:
ability to pass departmental examination in Greek. Staff
- 712 (642). **Readings in Greek: Paul's Letters.** (3:3:0) S. Prerequisite: ability
to pass departmental examination in Greek. Staff
- 713 (643). **Readings in Greek: General Epistles and the Apocalypse.** (3:3:0)
S.Su. Prerequisite: ability to pass departmental examination in Greek. Staff
- 721 (651). **Seminar: Book of Mormon.** (2:2:0) F.S.Su. Ludlow, Ricks, Sperry
- 724 (591). **Seminar: Doctrine and Covenants.** (2:2:0) F.S.Su. Andrus, Doxey
- 728 (659). **Readings in Modern Scripture.** (1-2:Arr.:Arr.) F.S.Su. Staff
- 799 (799). **Doctoral Dissertation.** (Arr.) F.S.Su. Staff

Biblical Languages

Professors: Nibley, Sperry.

Assistant Professor: Rasmussen (chairman, 13 PHP).

Instructor: Meservy.

Requirements

The Department of Biblical Languages offers training leading to the Master of Arts degree. A student must have adequate preparation on the undergraduate level before beginning work leading to this degree. The admissions committee of the graduate faculty of religion will determine if the student is properly prepared.

Each graduate student must fill all the general regulations and requirements for advanced degrees as outlined by the Graduate School. The responsibility of knowing and fulfilling these regulations and requirements rests with the student.

A statement of detailed requirements and procedures of the graduate program in religion may be obtained upon request from the dean of the College of Religious Instruction.

Master's Degree

Before a student is admitted on a degree-seeking basis, the admissions committee of the graduate faculty of religion will carefully study and evaluate his preparation and fitness for a graduate program. After acceptance, the student must select his advisory committee in consultation with the admissions committee, and must acquire at least 15 semester hours of formal course or seminar work in his major field and 10 semester hours of formal course or seminar work in his minor field; write an acceptable thesis embodying the results of research under faculty supervision; and successfully pass an oral examination.

Advanced Undergraduate or Graduate Courses

591, 592 (511, 512, 513). **Biblical Hebrew.** (5:5:0 ea.) F.S.Su. No prerequisite. Meservy, Rasmussen

A beginning course in the classical Hebrew of the Old Testament. Valuable for students and teachers as a tool for interpreting and appreciating the Bible.

593, 594 (514, 515, 516). **Advanced Hebrew Grammar and Selected Readings.** (3:3:0 ea.) F.S.Su. Prerequisite: Biblical Languages 591, 592 or equivalent acquaintance with Hebrew. Meservy, Rasmussen

Graduate Courses

690 (601, 602). **Readings in the Hebrew Old Testament.** (3:3:0) F. Prerequisite: two years of Hebrew or consent of instructor. Meservy, Rasmussen, Sperry

691 (602, 603). **Readings in Hebrew.** (3:3:0) S. Prerequisite: Hebrew 690. Meservy, Rasmussen

693, 694 (607, 608, 609). **Biblical Aramaic and the Targums.** (2:2:0 ea.) F.S. Prerequisite: at least one year of Biblical Hebrew. Meservy, Sperry

699 (699). **Thesis for Master's Degree.** (1-4:Arr.:Arr.) Staff

791 (611, 612, 613). **Syriac.** (5:5:0) Arr. Prerequisite: one year Biblical Hebrew or one year Aramaic. Meservy, Sperry

792 (614, 615, 616). **Syriac.** (3:3:0) Arr. Prerequisite: Biblical Languages 791. Meservy, Sperry

793, 794 (621, 622, 623). **Akkadian.** (2:2:0 ea.) Arr. Prerequisite: two years Biblical Hebrew. Meservy, Sperry

795, 796 (625, 626, 627). **Egyptian.** (2:2:0 ea.) Arr. Prerequisite: two years Biblical Hebrew or consent of instructor. Sperry

797, 798 (New). **Ugaritic.** (3:3:0) (2:2:0) F.S. Prerequisite: two years Biblical Hebrew. Meservy

Study of the alphabet, vocabulary, and grammar of the language of the Ras Shamra tablets. Valuable for its parallels to Biblical Hebrew.

For other language courses pertinent to scriptural studies, see the offerings of the Language Department of the College of Humanities and Social Sciences. Such courses as Classical Greek, the Greek New Testament, Classical Latin, the Latin Fathers, Arabic, and First Year Hebrew of the modern spoken variety are offered.

Botany

Professor: Harrison.

Associate Professors: McKnight (chairman, 233 Brimhall), Christensen.

Assistant Professors: Moore, Murdock, Stutz.

Requirements

A student working toward a graduate degree in botany should have a basic understanding of general botany, taxonomy, genetics, morphology, physiology, and ecology. It is assumed that he will also have training in mathematics, chemistry, physics, bacteriology, soils, and zoology adequate for advanced study in the area of his specialization. Where deficiencies exist provision may be made for correcting them.

An advisory examination is required of all candidates for graduate degrees. This examination is based on the student's undergraduate preparation in the major fields of botany and should be completed by the end of the first full semester of graduate study.

Advanced Undergraduate or Graduate Courses

- 501 (175). **Histological Technique.** (2:0:6) F. Prerequisites: Botany 101 or Zoology 105, and Botany 201. Moore
Techniques of preparing plant tissues for microscopic examination.
- 510 (604). **Advanced Taxonomy.** (3:1:6) S.Su. Prerequisites: Botany 110 and 176 or consent of instructor. Moore
- 525 (355). **General Cytology.** (3:2:3) F. Prerequisite: Botany 101 or Zoology 105. Moore
Study of the organization and functions of protoplasm.
- 561 (571). **Watershed Management.** (2:2:0) S. (Field trips to be arranged) Murdock
Influence of vegetation on water supplies, floods, soil erosion, and runoff. Methods in managing and rehabilitating damaged watersheds.
- 591 (590, 591). **Seminar.** (1:1:0) F. Staff
- 598 (496). **Special Problems.** (1-3:0:3-9) F.S. Staff

Graduate Courses

- 615 (615). **Agrostology: Taxonomy and Ecology of Grasses.** (2:1:5) F. Prerequisite: Botany 110; recommended prerequisite: Botany 176. Harrison
- 634 (New). **Morphogenesis.** (3:2:3) F. Prerequisite: training in the following areas is recommended: taxonomy, anatomy, and physiology or biochemistry. Moore
The problem of development of form in organisms, with emphasis upon plants.
- 635 (665, 668). **Advanced Mycology.** (4:2:6) S. Prerequisites: Botany 101 or Zoology 105, and Botany 335. McKnight
Consideration of current topics in physiology, morphology, and taxonomy of fungi.
- 638 (683). **Fleshy Fungi.** (2:1:3) Su. Prerequisite: a laboratory course in bacteriology, botany, or zoology. McKnight
The names, characteristics, and distribution of the edible and poisonous mushrooms, pore fungi, and puffballs of Utah.
- 639 (New). **Paleobotany.** (3:2:3) S. Prerequisite: Botany 101 or Zoology 105. Staff
- 655 (742). **Field Ecology.** (1-3:Arr.:Arr.) S.Su. (Extended field trip) Prerequisite: consent of instructor. Murdock
- 676 (625). **Cytogenetics.** (3:3:0) F. Prerequisite: Botany 525. Stutz
- 678 (650). **Speciation.** (3:3:0) S. Prerequisite: genetics or consent of instructor. Stutz
- 697, 698 (690, 691, 692). **Special Problems.** (1-3:0:3-9) F.S. Staff
- 699 (699). **Thesis for Master's Degree.** (1-4:0:3-12) F.S. Staff
- 740 (706). **Advanced Plant Physiology.** (3:2:3) S. Prerequisites: Botany 440, 450. Harrison

Current topics of interest such as photosynthesis, respiration, flowering responses, and regulation and control of growth.

- 742 (712). **Plant Nutrition and Growth.** (3:2:3) F. Prerequisites: Botany 440, Chemistry 111, 112; recommended prerequisite: organic chemistry. Harrison
- 750 (733). **Grassland and Desert Ecology.** (3:3:0) S. Prerequisite: consent of instructor. Christensen, Murdock
- 752 (735). **Forest Ecology.** (3:3:0) F. Prerequisite: consent of instructor. Christensen, Murdock
- 760 (754). **Conservation of Natural Resources.** (1-3:1-3:0-3) F. Prerequisite: consent of instructor. Christensen, Murdock

Business Education

Professor: Christensen (chairman).

Associate Professors: Croft, Peterson.

Assistant Professors: Bell, Crandall.

Requirements

A graduate program for a master's degree with a major in business education is available to students of graduate standing who have an undergraduate major in business.

Entrance into the program is subject to approval of a departmental graduate committee. Requirements for the major consist of 15 semester hours selected from the departmental course offerings. A minor of 10 semester hours must be selected from one of the other departments in the College of Business.

Prospective graduate majors are required to obtain departmental approval of their program before registering.

Graduate Courses

- 630 (630). **Current Developments Influencing the Content of Business Education.** (2:2:0) F. Staff
A presentation of recent technological developments, such as automation in business, and an analysis of the content and procedures of business education.
- 635 (635). **Recent Changes in the Materials and Methods of Business Education.** (2:2:0) S. Staff
Investigation of recent developments in materials and methods in the teaching of business subjects in the secondary school and junior college. Open to those who have had teaching experience.
- 640 (640). **Trends of Thought in Business Education.** (2:2:0) S. Staff
Fundamental ideas that have shaped the business curriculum in the United States and basic issues that have affected purposes, trends, and control of business education in public and private institutions.
- 665 (665). **Practicum in Business Education.** (2:2:0) F. Staff
The planning and development of practical and creative projects in the field of business education, individually or in groups. Experienced teachers will be permitted to use actual school problems and projects as the nucleus for the term's work.
- 670 (670). **Cooperative Business Experience Workshop.** (4:4:4) Su. Staff
Through the cooperation of business and industry in Utah, Salt Lake, Davis, and Weber Counties, this work-education program is offered to graduate business teachers. This blending of business-community experience and campus classwork strengthens in the teacher an awareness of the benefits of free enterprise and reveals business problems and practices related to teaching business subjects.
- 675 (675). **Business Education Workshop.** (2:2:0) Su. Staff
A series of clinics in selected business subjects.
- 690 (New). **Seminar.** (2:2:0) F.S. Staff
- 694 (New). **Independent Readings.** (1-4:1-4:0) F.S.Su. Staff

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|-----|---|-------|
| 698 | (New). Field Project for Master's Degree. (1-4:1-4:0) F.S.Su. | Staff |
| 699 | (New). Thesis for Master's Degree. (1-4:Arr.:Arr.) F.S.Su. | Staff |

Business Management

Professors: Boyle (emeritus), Clark, Taylor.

Associate Professor: Oaks (chairman).

Assistant Professors: Covey, Davis, Faux, Wilson.

Transfer to MBA Program

No application for Master of Science degree in the Department of Business Management will be accepted after July 31, 1960. However, graduate students may apply for acceptance in the new Masters in Business Administration program. Although there will not be a regular first year curriculum course offering during the 1960-61 school year, exceptional students will be permitted to take courses which will prepare them for the second year MBA program during the 1961-62 school year. In addition to securing acceptance by the University for graduate standing, students interested in this program should also secure written permission from the director of the MBA program.

A minor will still be available in the fields of business management, finance and banking, industrial management, and marketing for students majoring in other fields providing that the student has taken or is willing to take the necessary prerequisites to provide an adequate foundation for his projected graduate program in this department.

Advanced Undergraduate or Graduate Courses

- 521 (521). Human Relations in Administration II.** (3:3:0) S. Prerequisite: Business Management 420 or consent of instructor. Staff
An illuminating conceptual framework for understanding group processes is developed to identify factors contributing to understanding, growth, and cooperation in group work and leadership.
- 552 (552). Advanced Corporation Finance.** (3:3:0) S. Prerequisite: Business Management 348 or consent of instructor. Staff
Financial problems connected with organization of corporations, underwriting, and sale of securities; management, expansion, and organization of those that are not successful.
- 555 (555). Problems in Advertising.** (3:3:0) F. Prerequisite: Business Management 455 or consent of instructor. Staff
Problems in the use of advertising as a part of management's overall marketing strategy. Stresses planning, coordination, control, and evaluation of effectiveness.
- 556 (556). Problems in Retail Store Management.** (3:3:0) S. Prerequisite: Business Management 456 or consent of instructor. Staff
Problems involved in policy formulation and implementation and in the coordination of store activities through the use of controls and standards.
- 557 (557). Problems in Sales Management.** (3:3:0) F.S. Prerequisites: Business Management 303 and 347 or consent of instructor. Staff
Problems in sales methods, sales organization, management of sales force (selection, training, compensation, and supervision), and sales planning and control.
- 558, 559 (558, 559). Advanced Problems in Marketing Research.** (1-3:Arr.: Arr. ea.) F.S. Prerequisites: Business Management 458 and consent of instructor. Staff
Advanced methods of research and their application to marketing problems.
- 561 (560, 561). Problems in Production—Manufacturing Processes.** (5:4:2) F. Prerequisites: Business Management 340, Drawing 102, and senior or graduate standing in the department. Others by approval of instructor. Wilson

Wilson

Part one of a one-year course dealing with problems encountered by

production personnel. Considers: (1) the materials and manufacturing processes commonly used in industry, (2) process analysis as applied to work simplification and plant layout. Utilizes business cases, films, and field trips.

- 562 (561, 562). **Problems in Production—Manpower Management and Production Control.** (5:6:0) S. Prerequisite: Business Management 561. Wilson
Part two of a one-year series. Deals with time study, job evaluation, wage administration, manpower planning, and production control.
- 565 (565). **Life Insurance.** (2:2:0) S. Prerequisite: Business Management 450 or consent of instructor. Staff
Advanced study of the nature and functions of life insurance and its application to personal and business needs.
- 566 (566). **Property and Casualty Insurance.** (2:2:0) S. Prerequisite: Business Management 450 or consent of instructor. Staff
Advanced study of the functions of fire and marine insurance, casualty insurance, and corporate building.
- 567 (567). **Real Estate Administration.** (2:2:0) F. Prerequisite: Economics 454. Staff
Mechanisms of real estate finance, principles of mortgage risk analysis, role of government agencies, and problems of property development.
- 569 (569). **Personnel Management.** (3:3:0) S. Prerequisites: Economics 345, Business Management 420, or permission of the instructor. Staff
Management of the personnel function: job evaluation, organization planning, employee selection, training, compensation, morale, labor relations, and management development. Method: case analysis and research projects.
- 571 (571). **Management of Financial Institutions.** (3:3:0) S. Staff
Study of asset management of various types of financial institutions with special emphasis on loan policies and related problems.
- 573 (573). **Management of Production Facilities.** (2:2:2) S. Prerequisites: Business Management 303 and 561. Wilson
The economics of equipment utilization and replacement, capital budgeting, maintenance control, tools control, and systems and procedures analysis.
- 574 (574). **Investment Management.** (3:3:0) S. Prerequisite: Business Management 451. Staff
Theory of investment management and its application; formulation of investment policies for different types of investors.
- 575 (575). **Advanced Production Methods.** (2:2:2) S. Prerequisite: Business Management 561. Wilson
Advanced methods work, automation, and the application of data processing to industrial operations.
- 576 (576). **Industrial Planning and Forecasting.** (2:2:0) S. Prerequisite: departmental approval. Staff
Top management policy determination in the areas of production planning, planning of physical facilities, and organization planning as they are related to market and economic forecasts.
- 577 (577). **Modern Corporate Problems.** (2:2:0) S. Staff
Problems arising from separation of ownership and control, changing theory of profits and property, changing methods of financing expansion and other current problems.
- 579 (579). **Problems in Marketing.** (3:3:0) F.S. Prerequisite: Business Management 347. Staff
Analysis of problems in marketing management with particular emphasis upon integrating the various functional areas.
- 585 (585). **Industry Analysis.** (3:3:0) S. Prerequisites: Business Management 561 and 588. Staff
Production characteristics of major industries. Large business units are studied in terms of sources of raw materials, production techniques, finan-

cial structure, degree of integration, stage of maturity, character of mechanization, government regulation, and possible future developments.

588, 589 (588, 589). **Problems in Business Management.** (3:3:0) F.S. Limited to senior and graduate students in the College of Business. Staff

A one year integrating case course in which marketing, production, finance, control, economic, and human questions are considered simultaneously in developing realistic analyses, decisions, and plans of action. Extensive use of business cases requiring student analysis, group discussions, and written reports form the basis for the conduct of the course.

591 (591). **Research and Diagnosis of Business Problems.** (1-2:Arr.:Arr.) S. Prerequisite: Business Management 588 or consent of instructor. Staff

Provides experience in the research and diagnosis phase of the case method. Includes preparation of cases from actual business situations.

Graduate Course

699 (699). **Thesis for Master's Degree.** (1-4:Arr.:Arr.) F.S. Staff

These courses also count in Business Management:

Accounting 556. Electronic Computer Programming. (3:3:1)

Journalism 561. Public Relations. (3:3:0)

Statistics 532. Advanced Business Statistics. (2:2:0)

Chemistry

Professors: Swensen (chairman, 225 ESC), Anderson, Broadbent, Bryner, Goates, Hall, Nicholes.

Associate Professors: Blackham, Gubler, Nelson, Peterson, Vernon.

Assistant Professors: Butler, Hansen, Hawkins, Izatt, Snow, Wing.

Fields

1. Analytical—Physical Chemistry, 2. Biochemistry, 3. Inorganic Chemistry,
4. Organic Chemistry, 5. Physical Chemistry, 6. Basic Chemistry Minor.

Requirements

It is expected that the graduate student will meet all the general requirements for advanced degrees as outlined by the Graduate School. The responsibility for meeting these requirements rests with the student. Special requirements of the Department of Chemistry are given below. The objectives of the department in the selection and training of candidates for advanced degrees are first, to assure adequate depth and breadth of knowledge; and second, to discover and develop ability to do independent and productive scientific research. The student's record in undergraduate courses will be accepted as partial evidence of the breadth of his knowledge. He will be expected to extend and broaden this knowledge by taking and auditing advanced courses selected with the approval of his advisory committee.

It is expected that during the first semester of graduate work, the student will choose an advisory committee whose function will be to guide him throughout the course of his graduate study. It is the desire of the department that the student choose the chairman of his committee only after the most thorough investigation of the faculty available. It is required that he interview at least five faculty members active in research representing at least three areas. After these interviews, the results of which are to be recorded on a form to be obtained in the department office, the student will choose his major professor in consultation with the department chairman and the professor of his choice. The other committeemen will then be chosen by mutual consent of the student and his major professor.

Master's Degree

In addition to the general Graduate School requirements, a student must

successfully complete departmental entrance examinations before he will be accepted as a candidate for the master's degree. Each candidate for the master's degree will be required to pass a reading test or present a year's credit in French, German, or Russian.

Doctor of Philosophy Degree

Requirements for a Doctor of Philosophy degree in some field of chemistry include satisfactory completion of the following:

1. A written entrance examination to determine if the student has sufficient background to take the basic set of courses required for the doctor's degree.
2. A major consisting of the following general courses required of all students, viz., Chemistry 503, 504, and 601 plus an additional 13 hours minimum chosen from the major area with the help of the student's advisory committee.
3. The following list of basic courses: Chemistry 514, 551, 580, 621, 652, 661, 662. (Students majoring in biochemistry will not be required to take 580.) From the above list, one course in the student's major field and one course in his second minor field will count toward the fulfillment of the major and second minor requirements respectively. The remaining courses in this list will constitute a first minor in basic chemistry.
4. A second minor consisting of a minimum of 10 semester hours of courses in not more than two supporting areas.
5. A comprehensive examination to determine the student's mastery of the information expected of each candidate for the Ph.D. degree in chemistry. It will consist of written examinations in the major and minor fields, and may include a general oral examination at the option of the student's advisory committee. It may not be taken before the end of the first year of full-time study and will normally be taken at the end of the second year of full-time study, but must be taken at least one year prior to the granting of the degree. The student is not a candidate for the Ph.D. degree in chemistry until he has passed these examinations.
6. Admission to candidacy after (1) completing two years of graduate study, (2) passing language examinations, (3) passing comprehensive examinations, and (4) obtaining approval of subject for dissertation.
7. An oral examination in which one to three propositions (as recommended by his committee) will be presented by the student. The examination may not be held earlier than the comprehensive examination but will be held no later than three months after its completion.
8. A dissertation prepared under the direction of the candidate's advisory committee in which he reports and interprets the results of his research.
9. A final oral examination devoted primarily to the dissertation.

Advanced Undergraduate or Graduate Courses

- | | | | | | |
|-----|-------------|---------------------------------|----------------|--|-------------------------|
| 500 | (508). | *History of Chemistry. | (2:2:0) S. | (Offered 1960-61) | Nicholes |
| 503 | (503). | Research Laboratory Techniques. | (1:0:3) F. | | Staff |
| 504 | (504). | Instrumental Analysis. | (2:1:3) F.S. | | Butler, Goates |
| 514 | (414, 611). | Inorganic Chemistry. | (3:3:0) S. | Prerequisites: Chemistry 221 or 321 and Chemistry 351. | Hansen, Izatt, Peterson |
| 518 | (618). | *Inorganic Syntheses. | (2:0:6) | (Offered 1961-62) | Hansen, Izatt |
| 524 | (524). | *Quantitative Microanalysis. | (2:1:3) S. | (Offered 1961-62) | Wing |
| 551 | (551). | Qualitative Organic Analysis. | (2-3:1:3-6) F. | | |

Blackham, Broadbent, Hawkins, Nelson

Systematic identification of organic compounds, singly and in mixtures.

- | | | | | | |
|-----|--------|----------------------|------------|---------------------------------------|-----------------|
| 580 | (580). | Metabolic Processes. | (2:2:0) S. | Prerequisites: Chemistry 352 and 461. | Gubler, Swensen |
|-----|--------|----------------------|------------|---------------------------------------|-----------------|

For non-biochemistry majors only. Provides an insight into the important area of biochemistry for those who will not otherwise contact it.

- 581, 582 (581, 582, 583). **Biochemistry.** (5:3:6 ea.) F.S. Prerequisites: Chemistry 221 or 321 and Chemistry 352. Gubler, Swensen, Vernon
A general treatment of chemistry of substances and processes of biological significance.
- 591, 592 (591, 592, 593). **Chemical Literature and Technical Writing.** (1:1:0) F.S. Broadbent, Nelson
- 598 (597). **Special Problems.** (Arr.) Registration by permission. Staff
- Graduate Courses**
- 601 (601). **Geometry of Atoms and Molecules.** (3:3:2) F. Blackham, Broadbent, Hawkins, Nelson
- 612 (612). ***Chemistry of the Non-Metals.** (2:2:0) F. (Offered 1961-62) Hansen, Izatt
- 613 (613). ***Chemistry of the Metals.** (2:2:0) F. (Offered 1960-61) Hansen, Izatt
- 621 (621). **Advanced Analytical Chemistry.** (2:2:0) S. Butler
- 652 (652). **Advanced Organic Chemistry.** (3:3:0) S. Blackham, Broadbent, Hawkins, Nelson
- 658 (658). **Organic Syntheses.** (3:1:6) F. Blackham, Broadbent, Hawkins, Nelson
- 661 (661). **Chemical Thermodynamics.** (3:3:0) F. Goates, Snow
- 662 (662). **Chemical Thermodynamics.** (2:2:0) S. Goates, Snow
- 663 (663). **Reaction Kinetics.** (2:2:0) S. Goates, Snow
- 681 (681, 683). **Carbohydrate and Lipid Metabolism.** (3:3:0) F. (Offered 1960-61). Gubler, Swensen, Vernon
- 682 (682). ***Biochemistry of Amino Acids and Proteins.** (3:3:0) F. (Offered 1960-61) Gubler, Swensen, Vernon
- 688 (688). **Biochemical Preparations.** (2:0:6) F.S. Gubler, Swensen
- 697 (697). **Master's Candidate Research.** (Arr.) Arr. Staff
- 699 (699). **Thesis for Master's Degree.** (1-4:Arr.:Arr.) Staff
- 711 (711). ***Coordination Compounds.** (2:2:0) F. (Offered 1960-61) Izatt
- 719 (719). **Selected Topics in Inorganic Chemistry.** (1-3:1-3:0) Arr. Staff
- 725 (725, 726). ***Electro-analytical Chemistry.** (3:3:0) F. (Offered 1960-61) Butler
- 729 (729). **Selected Topics in Analytical Chemistry.** (1-3:1-3:0) Arr. Staff
- 751 (751). **Mechanisms of Organic Reactions.** (3:3:0) F. Blackham, Broadbent, Hawkins, Nelson
- 757 (757). ***Chemistry of Natural Products.** (2:2:0) S. (Offered 1960-61) Broadbent, Vernon
- 758 (758). ***Heterocyclic Compounds.** (2:2:0) S. (Offered 1961-62) Broadbent
- 759 (759). **Selected Topics in Organic Chemistry.** (1-3:1-3:0) Arr. Staff
- 761, 762 (761, 762, 763). ***Statistical Mechanics.** (3:3:0 ea.) F.S. (Offered 1960-61) Snow
- 764 (764). ***Nuclear and Radiochemistry.** (3:2:2) S. (Offered 1961-62) Anderson
- 765, 766 (765, 766, 767). ***Quantum Chemistry.** (3:3:0) F.S. (Offered 1961-62) Snow
- 769 (769). **Selected Topics in Physical Chemistry.** (1-3:1-3:0) Arr. Staff
- 781 (781). ***Enzyme Chemistry.** (2-3:2:0-3) F. (Offered 1961-62) Swensen, Vernon
- 782 (782). ***Biological Oxidations.** (2:2:0) S. (Offered 1961-62) Vernon
- 789 (789). **Selected Topics in Biochemistry.** (1-3:1-3:0) Arr. Staff
- 797 (797). **Doctoral Candidate Research.** (Arr.) Arr. Staff
- 799 (799). **Dissertation for the Ph.D. Degree.** (Arr.) Arr. Staff

*Offered in alternate years only.

Civil Engineering Science

Professors: Rollins (chairman, 198 ELB), Fuhrman, Hodson.

Associate Professors: Barton, Firmage.

Requirements

A student working toward a graduate degree in civil engineering should have completed a bachelors degree or its equivalent in civil engineering. Students without such training will be required to complete basic civil engineering courses before proceeding with a graduate program.

The areas in which students may do graduate work are hydraulics, materials, soil mechanics, and structures.

All students working toward a graduate degree in civil engineering are expected to complete a minimum of 6 semester hours of approved mathematics credit beyond a course in ordinary differential equations. Such courses must be a part of the master's degree program if they were not completed in the undergraduate program.

In addition to the general Graduate School requirements, a student must successfully complete a departmental entrance examination before he will be accepted as a candidate for the master's degree.

Advanced Undergraduate Courses

- 504 (504). Theory of Elasticity.** (3:3:0) Arr. Prerequisites: C.E. 401, Mathematics 315. Barton, Hodson

Theory of elastic behavior, complex stress failure and failure theories, selected experimental work.

- 505 (New). Experimental Stress Analysis.** (3:2:3) Arr. Prerequisites: C.E. 401, Math. 315 or equivalent. Barton

- 525 (501). Advanced Structures.** (3:2:3) F. Prerequisite: C.E. 424.

Hodson, Firmage

Theory and design of statically indeterminate structures, redundant frames, strain energy methods, Castigliano's theorems, slope-deflection equations and relaxation methods, associated drawing office work.

- 526 (505). Advanced Structural Design.** (3:2:3) Arr. Prerequisite: C.E. 525. Hodson, Firmage

Design of the more advanced type of structures such as continuous bridges, multi-story buildings, and roof structures. Covers design from the basic preliminary studies to the complete integrated structural design. Design office procedure.

- 531 (New). Advanced Hydraulic Design.** (3:2:3) Arr. Prerequisites: C.E. 424, 431, 432. Fuhrman

Planning and basic design of hydro-electric, flood control, irrigation, and multi-purpose projects involving the utilization of water resources; consideration of hydraulic and hydrologic design elements.

- 542 (520). Foundation Engineering.** (3:2:3) S. Prerequisite: C.E. 420. Rollins

Subsurface exploration, bearing capacity concepts, settlement of structures, and basic principles of foundation design.

- 543 (New). Physico-Chemical Characteristics of Soils.** (3:3:0) Arr. Prerequisites: Chemistry 106, Physics 212, C.E. 441. Rollins

Study of physico-chemical relationships in soils, including the structure of the clay minerals, properties of the electrical double layer, ion exchange phenomena, and soil moisture movement and equilibria.

- 551 (430). Sanitary Engineering.** (3:2:3) F. Prerequisites: C.E. 432, Bact. 381. Fuhrman

Review of public health engineering. Applications to design, construction, and operation of water supply and sewerage systems.

- 561 (521). Highway Engineering.** (3:2:3) S. Prerequisite: C.E. 542. Rollins

Traffic studies, geometric design grade separations, and interchanges. Properties subgrades, base courses, bituminous materials, and surface pave-

ments. Theory and practice in flexible pavement design. Design of concrete pavements, techniques of road construction.

- 571 (540). **Engineering Ethics, Economics, and Legal Problems.** (3:3:0) Arr. Staff
Prerequisite: fifth year standing in civil engineering science.
Professional, legal, and economic problems of the engineering profession, including contracts, specification writing and ethics. Case histories are studied as they effect the engineering profession.
- 598 (594, 595, 596). **Special Problems in Civil Engineering.** (Arr.) Arr. Pre-requisites: fifth year standing in engineering and permission of the department chairman. Staff
Selected problems for the field of civil engineering which will enable the student to apply his fundamental knowledge to their solutions.

Graduate Courses

- 601 (New). **Advanced Properties of Materials.** (3:3:0) Arr. Prerequisite: C.E. 401 or equivalent. Barton
- 621 (New). **Theory and Design of Thin-Shell Concrete Structures.** (3:3:0) Arr. Prerequisite: C.E. 525 or equivalent. Hodson
- 622 (New). **Bridge Design.** (3:3:0) Arr. Prerequisite: C.E. 525 or equivalent. Firmage
- 623 (New). **Pre-Stressed Concrete.** (3:3:0) Arr. Prerequisite: C.E. 424 or equivalent. Firmage
- 632 (New). **Advanced Hydrology.** (3:3:0) Arr. Prerequisites: C.E. 431, 432 or equivalent. Fuhrman
- 641 (New). **Advanced Soil Mechanics.** (3:3:0) Arr. Prerequisites: C.E. 441, 542, or equivalent. Rollins
- 642 (New). **Advanced Soil Mechanics Laboratory.** (2:0:6) Arr. Prerequisites: C.E. 441, 542, or equivalent. Staff
- 690 (New). **Civil Engineering Seminar.** (Arr.) S. Staff
- 694 (New). **Selected Problems in Civil Engineering.** (Arr.:Arr.:0) F.S. Staff
- 697 (New). **Research in Civil Engineering.** (Arr.) F.S. Staff
- 699 (New). **Thesis for Master's Degree.** (1-4:Arr.:Arr.) F.S. Staff

Economics

Professors: Nelson (chairman), Clark.

Associate Professors: Gardner, Mangum.

Assistant Professors: Davies, Doney.

Requirements

For full graduate standing students must have completed Economics 111 and 112 or equivalents and Statistics 221 or equivalent.

A minor in the field may be taken by one who has completed Economics 101 or 111 or equivalent.

Advanced Undergraduate or Graduate Courses

- 510 (510). **Utah Workshop on Economic Education.** (3:Arr.:Arr.) Su. (Continuous for three weeks.)
- 556 (556). **Transportation and Traffic Management.** (2:2:0) F. LeBaron
- 558 (558). **International Trade and Finance.** (3:3:0) S. Doxey
- 574 (New). **American Economic History.** (2:2:0) F. Doxey
- 575 (575). **Government Finance.** (3:3:0) F. Staff
Financing of federal, state, and local government. Includes a study of expenditures, taxes, budgeting, and government financial policies.
- 576 (576). **Government and Business.** (3:3:0) S. Staff

- 580 (580). **History of Economic Thought.** (3:3:0) F. Davies
The development of economic thought from the Greeks to the present day.
- 586 (586). **Theory of Price.** (3:3:0) F. Gardner
Advanced problems in pricing of products and productive factors. Principles of resource allocation and the welfare optima. Current controversies in welfare economics are explored.
- 587 (550). **Theory of Income, Employment, and the Price Level.** (3:3:0) S. Gardner
Neo-classical and Keynesian, aggregate income and employment theory in a static framework. Problems in economic dynamics and growth are considered with economic policy, both fiscal and monetary, being given attention.
- 593, 594 (593, 594, 595). **Seminar.** (1-2:1-2:0) F.S. Staff
- 681 (681). **Contemporary Economic Thought.** (2:2:0) S. Davies
- 682 (682). **Business and Economic Fluctuations.** (2:2:0) F. Nelson
- 683 (683). **Competitive Economic Systems.** (2:2:0) S. Nelson
- 696, 697 (696, 697, 698). **Research.** (1-3:Arr:Arr.) F.S.Su. Staff
- 699 (699). **Thesis for Master's Degree.** (1-4:Arr:Arr.) Staff

These courses also count in Economics:

Agricultural Economics 580. **Agricultural Policy.** (2:2:0)

Geography 560. **Industrial Geography.** (3:3:0)

Geography 565. **Urban Geography.** (2:2:0)

Educational Administration

Professors: Oakes (chairman, 126 McKay), Burrup, Morrill, Woolf.

Associate Professor: Barnett.

Requirements

The department offers graduate courses required for the preparation, certification, and professional development of school administrative and supervisory personnel. Academic work is available for those preparing for professional service in the areas of general administration—including the school superintendency, director of educational research, administrative assistants, and others), the school principalship (elementary and secondary), and general supervision (supervisor, director of instruction, curriculum director, and others).

Admission to the department with full graduate status is contingent upon the following:

1. Completion of 22 semester hours of education or a valid teaching credential.
2. Compliance with admission requirements of the Graduate School.
3. Evidence of the student's ability to do satisfactory graduate work (to be determined by the faculty of the department).

Master's Degree

The department offers the Master of Arts, the Master of Science, and the Master of Education degrees. Requirements for each degree are outlined elsewhere in this catalog.

It should be noted that a candidate must complete no less than one year as a teacher before completing the field project.

Majors: Recognizing the need for providing a broad professional background for administrative-supervisory leadership in education, the department has the following policies regarding courses:

1. All students must complete a core of courses covering general adminis-

tration, supervision, and research. These include:

Ed. Adm. 600 (Org. and Adm. of Public Schools)

Ed. Adm. 610 (Public School Finance)

Ed. Adm. 665 (Supervision of Education)

E.R.S. 641 (Ed. Research and Thesis Writing) (Does not count for hours in the major)

2. A course in curriculum building (Instruction 631 or 656) and a course in the history or philosophy of education (Ed. Phil. 604) are strongly recommended.
3. Those interested in administrative-supervisory positions should take Ed. Adm. 738 (Leadership Functions in Ed. Adm.), and such other courses as may be selected by the student and his adviser.
4. Those interested in the principalship, elementary or secondary, should take Ed. Adm. 631 (The Elementary School Principalship), or Ed. Adm. 644 (Work of the Secondary School Principal), and such others as may be selected by the student and his adviser.

Minors: Those minoring in the department should take Ed. Adm. 600, Ed. Adm. 665, and six additional hours in courses to be selected by the student and his adviser from offerings in the department.

Two-Year Graduate Program

In harmony with trends for increased training for the administrator-supervisor at the school district level, a two-year graduate program is offered by the department. In addition to the previously mentioned admission requirements, the candidate must (1) present evidence of at least two years professional experience, and (2) achieve a satisfactory score on the Ohio State Psychological Examination.

The program requires the completion of 60 semester hours of credit exclusive of field work. Required courses are: Ed. Adm. 610, 611, 631 or 644, 665, 673, 680, 738, and 775; Inst. 631 or 656, 646 or 676; E.R.S. 601, 620; Ed. Phil. 604. Other courses will be selected in consultation with the candidate's adviser.

Doctor of Education Degree

The Department of Educational Administration offers a major field for the Doctor of Education degree requiring 30 hours of work in graduate courses to be selected under the direction of the graduate committee of the college or the advisory committee when it is formed, and not to include independent study, individual research, or seminars. Courses from which the 30 hours may be selected are as follows: Administration 600, 610, 619, 631, 644, 651, 654, 665, 673, 680, 712, 723, 730, 737, 738, 741, 748, 749, 750, 775, 786; E.R.S. 653.

Three supporting fields are required for the major in educational administration. The student must complete 40 hours of work in the supporting fields with not less than 10 hours in any one of the three fields. He will select his courses under the direction and with the approval of his committee from those courses listed under the following fields.

THE EDUCATIONAL PROGRAM AND ITS IMPROVEMENT

Curriculum: Instr. 622, 631, 656; Ed. Adm. 682; Rel. Ed. 671, 672, 675, 676; **Articulation:** Ed. Phil. 662; Instr. 405; **Instruction:** Instr. 605, 608, 623, 635, 641, 642, 644, 646 or 676, 667, 670, 672, 673, 684; Art 668; Journ. 574; Rel. Ed. 603, 604, 607, 608; Music 615, 616; **Evaluation:** E.R.S. 610, 612.

THE STUDENT AND HIS PARTICIPATION IN THE SCHOOL

Human Behavior: (Learning) E.R.S. 601, 606; Psych. 365, 540; 560, 611; (Adjustment) E.R.S. 560, 611, 612, 620, 622, 625, 666; Psych. 550, 680.

THE SCHOOL AND THE SOCIAL ORDER

Structure and Function of Social Institutions: Soc. 423, 449, 470, 512, 686; Pol. Sci. 535, 595, 605; **Community Relations:** Adm. 626; **Educational Values:** Ed. Phil. 602, 604, 605, 621, 622, 631, 642, 662.

The student will be tested soon after his admission for familiarity with certain background fields of significance to education. The tests to be included are: (1) Scholastic aptitude, (2) Vocational interest, (3) Personality, (4) Effectiveness of expression, (5) General educational background, (6) Professional educational background.

Field Project and Report

The student must work out a project for the improvement of a program of administration or instruction specifically planned for a position which he will occupy in the field for not less than one year.

The position and the project will be approved by his advisory committee after he has passed the comprehensive examination. The position to be used for this field project must be one in which the student has responsibility for the area in which he will work out his project. He will be employed for pay and, therefore, will be under the supervision of his employer as well as his major professor during the field work on the project.

Graduate Courses

Prerequisite to all courses: 22 hours of education.

- | | | |
|---------------|---|------------------------------------|
| 600 | (600, 700). Organization and Administration of Public Schools. (3:3:0) F. S.Su. | Burrup, Eastmond, Morrill, Oakes |
| 610 | (610). Public School Finance. (2:2:0) F.S.Su. | Barnett, Burrup, Eastmond, Morrill |
| 619 | (619). Personnel Problems of the School Staff. (2:2:0) F.S.Su. | Barnett, Eastmond |
| 631 | (631). The Elementary School Principalship. (2:2:0) F.Su. | Morrill, Oakes |
| 644 | (644). Work of the Secondary School Principal. (2:2:0) S.Su. | Burrup, Morrill, Oakes |
| 651 | (651). Administration of Auxiliary Services. (2:2:0) F.Su. | Barnett |
| 654 | (654). Administration of Pupil Personnel. (2:2:0) S.Su. | Burrup |
| 665 | (665). Supervision of Education. (2:2:0) F.S.Su. | Oakes, Woolf |
| 673 | (673). School Law. (2:2:0) F.S.Su. | Barnett, Burrup, Oakes, Woolf |
| 680 | (New). Field Work in Educational Administration (and Supervision). (3:1:4) F.S.Su. | Staff |
| 682 | (New). The Junior College. (3:3:0) F.S. | Staff |
| 690, 691, 692 | (690, 691, 692). Seminar. (1-2:1-2:0) F.S.Su. | Staff |
| 693, 694 | (693, 694). Independent Readings. (1-2:3-6:0) F.S.Su. | Staff |
| 696, 697 | (696, 697). Independent Research. (1-2:3-6:0) F.S.Su. | Staff |
| 698 | (698). Field Project. (2-4:Arr.:Arr.) F.S.Su. | Staff |
| 699 | (699). Thesis for Master's Degree. (2-4:Arr.:Arr.) F.S.Su. | Staff |
| 712 | (712). The Junior High School. (2:2:0) S.Su. | Staff |
| 723 | (723). The Senior High School. (2:2:0) S.Su. | Staff |
| 730 | (730). Business Administration of the Public Schools. (2:2:0) S.Su. | Burrup, Eastmond |
| 737 | (737). Research and Survey Procedures in Educational Administration. (2:2:0) S.Su. | Morrill, Oakes |
| 738 | (626, 738). Leadership Functions in Educational Administration. (3:3:0) F.S.Su. | Eastmond, Morrill |
| 741 | (New). The Organization and Administration of Continuing Education. (3:3:0) F.S.Su. | Barnett, Burrup, Staff |
| 748 | (748). College and University Organization and Administration. (2:2:0) F.Su. | Oakes |
| 749 | (749). Evaluation and Accreditation of Educational Institutions. (2:2:0) F.Su. | Oakes, Woolf |
| 750 | (750). Public School Building Programs. (2:2:0) S.Su. | Barnett, Morrill |

- 775 (New). **Educational Administrative Theory.** (3:3:0) F.S.Su.
Barnett, Burrup, Staff
- 786 (786). **Problems of Taxation and Financial Support of Public Institutions.**
(2:2:0) F.Su. Burrup, Eastmond
- 798 (798). **Doctoral Field Project.** (Arr.) F.S.Su. Staff

Educational Philosophy and Programs

Professor: Woodruff.

Associate Professor: Alley (chairman, 202 McKay).

Assistant Professor: Ovard.

Requirements

The department currently is organized to provide service courses for graduate students in other areas of the college and University. Normally students do not major in subject areas of the department; therefore, a major is not provided at the master's level. A minor in this field is provided for graduate students.

Graduate students enrolling in the area of philosophy of education are expected to take first the basic course in Ed. Phil. 604. Variations to this must be approved by the department chairman.

Graduate Courses

PHILOSOPHY OF EDUCATION

- 602 (602). **Educational Values and the Experienced Teacher.** (2:2:0) Su.
Alley, Ovard
- 604 (604, 605). **Comparative Current Educational Philosophy.** (3:3:0) F.S.Su.
Alley
- 605 (605, 615). **Educational Classics and Contemporary Issues.** (3:3:0) S.
Alley

HISTORY OF EDUCATION

- 621 (621, 622). **History of Education in Europe and America.** (4:4:0) F. Ovard
- 631 (631). **Education in a World Setting.** (2:2:0) S. Romney

THE SCHOOL IN THE SOCIAL ORDER

- 642 (642). **Education in the Social Order.** (2:2:0) Ovard

EDUCATIONAL OBJECTIVES AND PROGRAMS

- 662 (662). **Philosophy of Program Planning.** (2:2:0) S. Oakes, Woodruff

GENERAL COURSES

- 690, 691 (690, 691). **Seminar.** (1-3:1-3:0 ea.) F.S. Staff
- 693, 694 (693, 694). **Independent Readings.** (1-2:3-9:0 ea.) F.S. Staff
- 696, 697 (696, 697). **Independent Research.** (1-2:3-9:0 ea.) F.S. Staff
- 698 (698). **Field Project.** (Arr.) Arr. Staff
- 699 (699). **Thesis.** (Arr.) Arr. Staff

Educational Research and Services

Professors: Egbert (chairman, 254 McKay), Lloyd, Reid, Romney, Woodruff.

Associate Professors: Bauer, Clark, Downing, Krider, Parker.

Assistant Professors: Harris, Jensen.

Instructor: Wilson.

Fields

Educational Psychology, School Psychology (with Psychology Department), Personnel and Guidance, Special Education.

Requirements

The responsibility for satisfying the general regulations for advanced degrees, as outlined by the Graduate School, lies with the student. For a complete description of programs and for details regarding requirements, including testing, for admission to the department, the student should contact the chairman of the Department of Educational Research and Services prior to or at the time of application for admission to the Graduate School.

Master's Degree

Educational Psychology: Full graduate standing in educational psychology is contingent on elementary or secondary certification plus twelve semester hours of psychology of which at least nine must be in basic psychology courses.

Master's degree: The student must complete at least 16 hours of course work including E.R.S. 541, 550, 560, 601, 610 or 611, 620, and 641. He must also write a thesis and pass a final oral examination.

Personnel and Guidance: Students seeking a graduate degree in personnel and guidance should have a suitable background of course work in some field such as psychology, sociology, or human development and family relationships.

Master's degree: The student must fill the following requirements: Except with the approval of the department, the student must be certified prior to completing the master's degree. If he has not already completed the following courses or their equivalents prior to entering the graduate program, the student must take, in addition to the regularly prescribed courses: E.R.S. 540 and 550 and Psychology 111 and 378. The student must complete the following courses: E.R.S. 611, 620; either 622, 625, or 653; 641, 651, 670; and Psychology 640. He must also write a thesis or field project and pass a final oral examination.

School Psychology: This program is offered jointly with the Psychology Department. To be admitted to this program the student must have completed, or must complete in addition to the specified courses, the following: elementary or secondary certification; E.R.S. 540, 550, and 560; and Psychology 111, 185, 320 or 321, 360 and 365 or 311, 378, 445, 540, and 550.

Master's degree: The student must complete the following courses: E.R.S. 606, 611, 612, 620, and 630; Psychology 640, 740, and 741; either E.R.S. 601 or Psychology 560 and six semester hours of practicum—four in E.R.S. and two in psychology. (Those students majoring in psychology take four semester hours of psychology and two hours of E.R.S. practicum). He must also write an acceptable thesis based on original research.

Special Education: The Department of Educational Research and Services offers a master's degree in special education. In this program the teacher is prepared for work with children with motor or academic handicaps. To be admitted to graduate work in special education, the student must have a valid teaching certificate plus appropriate experience.

Master's degree: The student must complete the following courses: E.R.S. 560, 668, 676, 677, and Instruction 626 plus appropriate courses in an area of specialization. He must also write an acceptable thesis based on original research.

Doctor's Degrees

The Department of Educational Research and Services offers both the Doctor of Philosophy and the Doctor of Education degrees in educational psychology. Although these programs carry the same title, they prepare the candidate to serve in essentially different capacities. As a result, the candidate should discuss his goals with the chairman or some other member of the department before making a definite selection.

Doctor of Philosophy Degree: Full graduate standing in educational psychology is contingent on elementary or secondary certification plus twelve hours of psychology of which at least nine must be in basic psychology courses. In completing a doctoral major in educational psychology a candidate will be expected to have competence in each of eight areas and to have gained more extensive coverage of at least one of these fields. Basic competence will be defined as ability to pass a comprehensive examination covering the eight areas. In general, the comprehensive examination will be drawn from subject matter covered in the following courses:

1. Statistics and Research Methods: E.R.S. 540, 541, and 641.
2. Measurement: E.R.S. 410 and 610 or 611; Psychology 378 and 640.
3. Learning: E.R.S. 601 and 791; Psychology 560.
4. Guidance and Counseling: E.R.S. 550, 620, and 670.
5. Human Development and Personality: E.R.S. 606; Psychology 550.
6. Special Education: E.R.S. 560.
7. Psychological and Sociological Foundations: Psychology 374, 610, 611; Sociology 505.
8. Educational Foundations: Ed. Administration 600; Ed. Philosophy and Programs 604; Instruction 631 or 656.

Areas of specialization which have been established are: **Statistics and Research Methods:** Psychology 574, Statistics 332 and 534, and either Psychology 670 and 671 or Statistics 431 and 531. (A student electing this specialization should not take E.R.S. 541). **Measurement:** E.R.S. 612, 790, and Psychology 740. **Human Development and Personality:** H.D.F.R. 510, 611, and Psychology 552 and 750. **Special Education:** E.R.S. 612, 630, 666, 667, 691, and either 676 and 677 or 678 and 679. (Students will also take courses in specific areas of interest in special education.)

Minors: In addition to the major, the candidate for a Ph.D. degree in educational psychology must qualify in two related minor fields, at least one of which must be in either education or psychology. Those who elect special education as an area of specialization must have one minor which shall be in psychology. A minor is defined as 12 semester hours of acceptable course work.

Doctor of Education Degree: In order to be admitted to the program for the Doctor of Education degree in educational psychology the candidate must have completed the equivalent of an undergraduate minor in psychology, including a course in either child or adolescent psychology, and must have either an elementary or a secondary certificate. He must have also completed two years of successful school experience. In completing an Ed.D. major in educational psychology, the candidate will be expected to complete the following courses or their equivalents: E.R.S. 540, 541, 550, 560, 611, 620, 622 or 625, 641, 651, 653, 670, 690, 771, 790, and 791; and Psychology 560, 640, and 750.

Three supporting fields are required for the Ed.D. major in educational psychology. The student must complete 40 hours of work in the supporting fields, with not less than 10 hours in any one of the three fields. Required courses in each supporting field are as follows: **The Educational Program and Its Improvement:** Instruction 631 or 656, 646 or 676, and Ed. Admin. 600 and 654. **The School and the Social Order:** Ed. Phil 605, 621, and Sociology 505. **Psychological Foundations:** Psychology 378, 540, 550, and 610. Other courses to make up the 40 hours minimum will be selected under the direction and with the approval of the student's committee.

The candidate will also be expected to complete a field project in the field of personnel and guidance.

EDUCATIONAL PSYCHOLOGY AND GUIDANCE COURSES

Advanced Undergraduate or Graduate Courses

540 (540). **Statistical Methods.** (2:2:0) F.Su.

Bauer, Egbert

Consideration is given to measures of central tendency, variability, and

linear correlation. Elementary concepts of probability and inference are discussed. Required but may not be counted as part of the 45 hours for the master's degree by people majoring in this department.

- 541 (541). **Advanced Statistics.** (2:2:0) S.Su. Prerequisite: E.R.S. 540. Egbert
 550 (550). **Introduction to Guidance Services.** (2:2:0) F.S.Su.

Downing, Jensen, Moses, Parker

Introduction to principles and practices of the guidance program in public schools. Designed for prospective teachers of both elementary and secondary levels. This course is required but may not be counted as part of the 45 hours for the master's degree by people majoring in this department.

Graduate Courses

- 601 (601, 602). **Advanced Educational Psychology.** (2:2:0) S.Su. Prerequisite: E.R.S. 403. Bauer, Harris
 606 (606). **Behavior Problems in the Schools.** (2:2:0) F.S.Su. Prerequisites: E.R.S. 403, 550. Downing
 610 (610). **Educational Tests and Measurements.** (2:2:0) F.Su. Bauer, Harris
 611 (611, 621). **Guidance Testing and Diagnosis.** (3:3:0) F.Su. Prerequisite: E.R.S. 550. Jensen, Moses
 612 (612). **Diagnosis of Achievement Difficulties.** (2:2:0) F.Su. Prerequisite: E.R.S. 610 or 611. Harris, Krider
 620 (620, 621). **Counseling Theory and Practice.** (3:3:0) F.Su. Prerequisite: E.R.S. 550. Downing, Moses, Parker, Reid
 622 (622). **Group Techniques for Counselors.** (2:2:0) S.Su. Prerequisites: E.R.S. 550 and 620. Downing, Jensen, Moses
 624 (624). **Industrial Counseling.** (2:2:0) Arr. Prerequisites: E.R.S. 550, 620, 651. Staff
 625 (625). **Advanced Counseling Theory.** (2:2:0) S.Su. Prerequisites: E.R.S. 620 and Psychology 550. Parker, Reid
 640 (640). **Evaluation of Educational and Psychological Literature.** (2:2:0) S. Su. Staff
 641 (641). **Educational Research and Thesis Writing.** (2:2:0) F.Su. Prerequisite: E.R.S. 540. Egbert
 650 (650). **Guidance Workshop.** (2:2:0) Arr. Prerequisite: E.R.S. 550. Staff
 651 (651). **Informational Services in Guidance.** (3:3:0) S.Su. Prerequisite: E.R.S. 550. Clark, Downing
 653 (653). **Administration of Guidance Services.** (2:2:0) S.Su. Prerequisite: E.R.S. 550. Downing
 656 (656). **Student Personnel Services in Higher Education.** (2:2:0) S. Prerequisite: E.R.S. 550. Clark, Lloyd
 670 (670, 672, New). **Practicum in Testing and Counseling.** (5:2:10) F.S.Su. Prerequisite: consent of instructor. Jensen, Parker
 675 (675). **Practicum in School Psychology.** (2-4:1-2:4-8) S. Prerequisite: consent of instructor. Moses
 690 (690). **Seminar in Personnel and Guidance.** (1:1:0) F.S.Su. Prerequisite: consent of instructor. Staff
 771 (New). **Practicum in Counseling.** (3:1:8) S.Su. Prerequisite: consent of instructor. Parker
 790 (New). **Seminar: Educational Measurement.** (2:2:0) S.Su. Prerequisite: consent of instructor. Harris, Jensen
 791 (New). **Seminar: Learning Theory Applied to Education.** (2:2:0) S.Su. Prerequisite: Psychology 560. Bauer, Egbert, Woodruff

SPECIAL EDUCATION COURSES

Advanced Undergraduate or Graduate Courses

- 560 (560). Education of Exceptional Children. (3:3:0) F.S.Su. Krider, Wilson
A general course designed to acquaint the student with the causes, recognition, incidence, and characteristics of all types of exceptional children. Designed to meet needs of both classroom teacher and person going into special education.
- 561 (561). Standard English Braille. (2:2:0) Arr. Staff
- 562 (562). Advanced Standard English Braille. (2:2:0) Arr. Prerequisite: E. R.S. 561. Staff
- 563 (563, 564). Problems in the Education of the Visually Handicapped. (3:3:0) Arr. Prerequisite: consent of instructor. Staff

Graduate Courses

- 630 (630). Corrective Teaching Techniques. (2:2:0) S.Su. Prerequisite: E.R.S. 612 or consent of instructor. Bauer, Krider, Wilson
- 662 (662). Workshop in Special Education. (4:4:0) Arr. Prerequisite: consent of instructor. Krider
- 664 (664). Special Education Services in Public Schools. (2:2:0) Arr. Su. Staff
- 666 (665, 666). Problems in the Education of Orthopedically Handicapped Children. (3:3:0) F.Su. Prerequisite: E.R.S. 560. Wilson
- 667 (661, 667). Problems in the Education of Mentally Retarded Children. (3:3:0) S.Su. Prerequisite: E.R.S. 560. Krider
- 668 (668). Observation and Participation in Special Education. (2:1:3) F.S. Su. Prerequisite: consent of instructor. Krider, Wilson
- 676, 677 (674). Practicum in Special Education. (2:0:6 ea.) S.Su. Prerequisite: consent of instructor. Krider, Wilson
- 678, 679 (674, New). Practicum in Corrective Teaching. (2:0:6 ea.) S.Su. Prerequisite: consent of instructor. Krider, Wilson
- 691 (660). Seminar in Special Education. (2:2:0) S.Su. Prerequisite: consent of instructor. Krider, Wilson

See also Instruction 624, Arts and Crafts for the Handicapped.

GENERAL COURSES

- 693, 694 (693, 694). Independent Readings. (1-2:1-2:2-4 ea.) F.S.Su. Staff
- 696, 697 (696, 697). Independent Research. (1:0:3 ea.) F.S.Su. Staff
- 698 (698). Field Project for Master's Degree. (2-4:Arr.:Arr.) F.S.Su. Staff
- 699 (699). Thesis for Master's Degree. (2-4:Arr.:Arr.) F.S.Su. Staff
- 798 (New). Field Project for Ed.D. Degree. (Arr.) F.S.Su. Staff
- 799 (New). Dissertation for Ph.D. Degree. (Arr.) F.S.Su. Staff

Electrical Engineering Science

Professors: Bartholomew, Jonsson.

Associate Professor: Monson (chairman, 172-B ELB).

Assistant Professor: Woodbury.

The department of Electrical Engineering Science offers the master's degree in the area of electronics and its allied subjects. It is expected that a student's projected graduate program, formulated with the approval of his advisory committee, will include a minimum of 18 semester hours of engineering subjects and a minimum of 10 semester hours of basic science—5 hours of which must be in mathematics. Of the 18 hours referred to above, 6 hours of credit will be required for readings, research, and thesis. Each candidate for the master's degree will be required to pass an examination prior to graduation.

In view of the engineering science emphasis given to the undergraduate curriculum, the transfer student may find it necessary and desirable to take certain courses normally required of the undergraduate student at Brigham Young University. Prospective majors should consult the department prior to registration to determine whether such a course will be considered remedial or allowed to apply on the degree.

Advanced Undergraduate or Graduate Courses

- 511 (New). Network Synthesis.** (3:3:0) Arr. Prerequisite: E.E. 313 or equivalent. Staff
This course is designed to present the basic theory for the synthesis of 2-terminal and 4-terminal networks. Various basic approaches will be enumerated and applied to ladder and lattice types of filter networks. Insertion loss and phase shift characteristics and means of meeting such requirements will be presented.
- 516 (511). Servomechanisms.** (3:3:0) Arr. Prerequisites: E.E. 312 and concurrent registration in E.E. 442, or E.E. 302, Mathematics 316; C.E. 302 or 304. Jonsson
Theory and application of electrical and electro-mechanical automatic control systems.
- 523 (523). Digital Computer Engineering.** (3:2:3) Arr. Prerequisite: fourth year standing as an engineer. Bartholomew
A study of the logical design and operation of digital computers.
- 528 (521). Analog Computer.** (2:2:0) Arr. Prerequisite: E.E. 302 or 442. Bartholomew
Theory and operation of summing, integrating, and differentiating circuits; function generators and operational amplifiers and their applications to analog computers. Also the application of signal-flow graphs to the analysis and simulation of analog computer systems.
- 531 (531). Power Systems.** (2:2:0) Arr. Prerequisite: E.E. 432. Bartholomew
The analysis and the design of electrical power distribution systems and a study of electrical power distribution system protection.
- 537, 538 (537, 538). Advanced Control Machinery Laboratory.** (1:0:3 ea.) S. Prerequisite: E.E. 462. Staff
Each of these courses constitutes a block of experiments in the area of machinery control systems, machinery characteristics and power distribution methods. Registration is permitted for either course or both courses simultaneously.
- 541 (541). Advanced Transistors.** (4:3:3) F. Prerequisite: E.E. 442. Staff
Theory and application of pulsed networks using transistors and other pulse shaping devices.
- 567, 568 (567, 568). Advanced Communications and Electronics Laboratory.** (1:0:3 ea.) S. Prerequisite: E.E. 462. Staff
Each of these courses constitutes a block of experiments in the area of U.H.F. techniques, electronic circuits, communication systems, pulse forming networks, transmission lines and filters. Registration is permitted for either course or both courses simultaneously.
- 570 (550). Illumination.** (2:2:0) Arr. Prerequisites: E.E. 312, 441. Monson
Principles and design of artificial illumination for various applications; lamp characteristics; measurements; costs.
- 580 (550). Elements of Acoustics.** (2:2:0) Arr. Prerequisite: fifth year standing in electrical engineering. Monson
Brief course in the fundamentals of sound production, transmission, and reception with an introduction into sound application in public address and other engineering systems.
- 581 (581, 582, 583). Psycho-Acoustics.** (4:4:0) Arr. Prerequisite: E.E. 442. Staff
Speech and hearing from a communication engineering viewpoint. Synamical analysis of speech and hearing processes are developed. Known experi-

mental facts about speech and hearing are systematically studied and compared with calculated results. Methods of calculating and measuring articulation index of talker-listener pair when using any specified type of communication system.

- 584, 585 (584, 585, 586). **Advanced Musical Acoustics.** (2:2:0 ea.) Arr. Pre-requisites: Physics 561, 562, or E.E. 580. Staff

Technical study of acoustical behavior of different musical instruments, consideration of sound power output of single instruments and ensembles, stereophonic reproduction of music, possibilities of electronic musical instruments.

- 587 (587). **Architectural Acoustics.** (3:3:0) Arr. Prerequisites: Physics 211, 212. Staff

Fundamental behavior of sound in rooms; effects of shape and size upon perception of speech and music; proper use of public address and sound reinforcing systems, sound absorption and insulation properties of different kinds of room walls; kinds and amounts of sound absorption materials to use in sound treatment of rooms and auditoriums.

- 591, 592 (591, 592, 593). **Seminar and Field Trips.** (1:0:3 ea.) F.S. Prerequisite: fifth year standing in electrical engineering. Staff

Student and faculty presentation of special topics and subjects of current interest; visits to industries displaying varied types of electrical engineering applications. Participation on the annual field trip is required.

- 598 (594, 595, 596). **Special Problem.** (Arr.) F.S. Staff

Registration by permission of professor sponsoring problem. A maximum of two credit hours may be applied toward filling the restricted elective requirement.

Graduate Courses

- 611 (New). **Advanced Network Synthesis.** (3:3:0) S. Prerequisite: E.E. 511. Staff

A continuation of E.E. 511. Active elements are included in the design problem and some recent developments in this field are presented.

- 618 (New). **Non-Linear Analysis.** (3:3:0) S. Prerequisite: E.E. 511. Staff

Analytical and topological methods of solving non-linear differential equations are presented covering both mechanical vibrations and electrical oscillations. Analysis in the n dimensional phase plane, Z transforms, and the contributions of such authors as Minorsky and Pontryagin are applied to feedback control systems involving multi-loops containing non-linear elements.

- 620 (New). **Information Theory.** (3:3:0) Arr. Prerequisite: E.E. 462 or equivalent. Staff

Power spectrum analysis as applied to communications engineering is presented. Discrete systems, continuous signals, random noise, signal space, and correlation functions are applied to signal propagation and detection.

- 641, 642 (New). **Advanced Electronic Devices.** (3:3:0 ea.) F.S. Prerequisite: E.E. 541. Staff

A continuation of E.E. 461, 462, and 541. Advanced pulse techniques employing both vacuum tubes and solid state devices are considered. Particular emphasis is given to the effects of temperature, noise, stability problems, compensating means, and DC amplification.

- 645 (New). **Microwave Devices.** (3:3:0) S. Prerequisite: E.E. 661. Staff

Consideration is given to electronic and solid state devices which have particular application to the propagation, attenuation, modification, and detection of frequencies at and above the S-band.

- 661, 662 (New). **Advanced Electromagnetic Fields.** (3:3:0 ea.) F.S. Prerequisite: E.E. 461 or equivalent. Staff

Problems of wave propagation and reflexion are considered. Includes the study of transmission lines, antennas, and radiation.

- 698 (New). **Readings and Seminar.** (1:1:0) F. Prerequisite: graduate standing. Staff

It is expected that every graduate student will make a literature study

and report the results of such readings, outlining his proposed problem, at a seminar with other graduate students and faculty before commencing his research and thesis.

- 699 (New). Thesis for Master's Degree. (1-4:Arr.:Arr.) Arr. Prerequisite: graduate standing. Staff

English

Professors: B. Clark (chairman, 305 McKay), Christensen, Farnsworth, Hart, Jacobs, Rice, Young.

Associate Professors: Britsch, Cheney, M. Clark, Larson, Monson, Spears, Tanner.

Assistant Professors: Craig, Ellsworth, McKendrick, Olson, Smart, Thomas, Thomson, West, Wood.

Requirements

A graduate may major in either American or English literature; he may minor in a subject outside the English department or in English literature, American literature, or language.

The following courses must be included:

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|--|---------|
| a. 615, Bibliography and Methods of Research | 1 hour |
| b. 525, Old English | 3 hours |

The following courses must also be included if the student did not have them as an undergraduate:

- | | |
|--|---------|
| a. 521, The History of the English Language | 3 hours |
| b. 550, The Criticism and Appreciation of Literature | 3 hours |

In fulfilling the thesis requirement for a master's degree in English, a student may select any one of the following three options: (1) one long thesis on a topic demanding research, criticism, or both; (2) three long papers written in three different areas of English or American language or literature and on topics demanding research, criticism, or both; (3) two long papers written in two different areas of English or American language or literature and on topics demanding research, criticism, or both, and one long paper in the area of imaginative writing.

The work done under any of the above three options is under the direction of the student's advisory committee and must fulfill all of the requirements of form, date of submission, and binding that apply to regular master's theses.

Remedial Course

- 99 (99). Problems in Thesis Writing. (0:2:0) F.S.Su. Staff

Advanced Undergraduate or Graduate Courses

- 500-509 (400-409). Eminent American Writers. (1:1:0 ea.) F.S. M. Clark, Staff

Different writers are treated each year in this series.

- 510-519 (410-419). Eminent English Writers. (1:1:0 ea.) F.S. McKendrick, Staff

Different writers are treated each year in this series.

- 521 (521). History of the English Language. (3:3:0) S. Christensen
Course descriptive of the English language in various stages of its development, with background of related historical events.

- 525 (525). Old English. (3:3:0) F. Undergraduate prerequisite: approval of instructor. Young

- 526 (526). Middle English. (2:2:0) S. Undergraduate prerequisite: approval of instructor. Christensen, Monson

- 541 (541). English Drama to 1642. (2:2:0) F. Young
Religious drama of the Middle Ages, court plays, and popular drama of the Renaissance, excluding Shakespeare.

- 542 (542). *Restoration and Eighteenth Century Drama*. (2:2:0) S. Rice
English drama from 1660 to 1800, with emphasis on high comedy, sentimental comedy, and heroic tragedy.
- 543 (543). *Modern English and American Drama*. (2:2:0) F. Tanner
Major English and American dramatists since 1890.
- 550 (550). *The Criticism and Appreciation of Literature*. (3:3:0) S. Hart, Thomas
Study of critical theories and standards of value.
- 582 (New). *Extended Readings in Shakespeare*. (3:3:0) F.S. Young, Staff
Extensive study of the body of Shakespeare's works.

Graduate Courses

- 615 (615). *Bibliography and Methods of Research*. (1:1:0) F.Su. Larson
- 625 (625). *Beowulf*. (2:2:0) S. McKendrick
- 631 (631). *The English Novel*. (2:2:0) F. B. Clark
- 635 (635). *The American Novel*. (2:2:0) S. M. Clark, Smart
- 641 (641). *The English Drama*. (2:2:0) S. Craig
- 661 (661). *Colonialism and Puritanism in American Literature*. (2:2:0) S. Jacobs
- 662 (662). *Romanticism in American Literature*. (2:2:0) F. Thomas
- 664 (664). *Realism and Naturalism in American Literature*. (2:2:0) F. Jacobs, Thomas, Thomson
- 671 (671). *The Medieval Period in English Literature*. (2:2:0) S. Christensen
- 672 (672). *The Renaissance in English Literature*. (2:2:0) F. Larson, Young
- 673 (673). *Neo-Classicism in English Literature*. (2:2:0) S. Hart, Rice
- 674 (674). *Romanticism in English Literature*. (2:2:0) F. B. Clark
- 675 (675). *The Victorian Age in English Literature*. (2:2:0) S. Farnsworth
- 682 (682). *Shakespeare*. (2:2:0) F. Hart
- 691 (New). *Research in Folklore*. (2:2:0) S. Cheney
Directed study and research in folk tales, folk poetry, etc., especially as they are related to the Mormon heritage and tradition.
- 695 (695). *Individual Readings in English*. (1-2:1-4:0) F.S.Su. Staff
- 699 (699). *Thesis for Master's Degree*. (1-4:Arr.:Arr.) F.S.Su. Staff

Food and Nutrition

Professors: Morris, Trunnell.

Associate Professor: Bennion (chairman, 2218 SFLC).

Requirements

For full graduate standing a student must have completed a bachelor's degree with a major in food and nutrition or a closely related field with basic courses in the physical and biological sciences. These basic sciences must have included the following: general chemistry, 5 semester hours; organic chemistry, 5 semester hours; and biochemistry, 4 semester hours. Students with subject matter deficiencies may be recommended for admission, but these deficiencies must be removed before a degree is granted.

The specific selection of courses for a graduate degree is based upon the student's objectives, interest, and preparation. A suitable program is planned in consultation with the major professor. However, all candidates for a master's degree in food and nutrition must have completed the following: quantitative chemistry, 3 semester hours; food bacteriology, 2 semester hours; physiology, 4 semester hours; and Food and Nutrition 535, 564, 690, 691, and 695 or 696.

Advanced Undergraduate or Graduate Courses

- 535 (535). *Advanced Human Nutrition*. (2:2:0) S. Prerequisite: Food and

Nutrition 335 or equivalent.

Morris

An advanced study of the principles of human nutrition.

- 564 (564). **Experimental Cookery.** (3:2:3) F. Prerequisites: Food and Nutrition 264; Chemistry 284. Bennion

An advanced study of the structure of food and the chemical and physical changes occurring during processing and preparation.

- 566 (566, 568). **Chemistry Applied to Food.** (2:2:0) Not offered 1960-61. Bennion

Understanding quality in prepared food. Composition of food and practices followed in preparation are related to the colloidal nature of food and to chemical and bio-chemical reactions involved.

- 590 (590). **Readings in Food and Nutrition.** (2:2:0) F. Prerequisite: 10 credit hours in food and nutrition or consent of instructor. Staff

- 594 (594). **Special Problems in Food.** (1-2:0:3-6) S. Prerequisite: permission of instructor and chairman of department. Designed for students who have completed at least 12 hours in food and nutrition including Food and Nutrition 590. Staff

Independent study of a special problem in food under direction of an instructor.

- 595 (595). **Special Problems in Nutrition.** (1-2:0:3-6) S. Prerequisite: permission of instructor and chairman of department. Designed for students who have completed at least 12 hours in food and nutrition including Food and Nutrition 590. Staff

Independent study of a special problem in nutrition under direction of an instructor.

Graduate Courses

- 645 (630). **Advanced Child Nutrition.** (2:2:0) Arr. Prerequisites: Food and Nutrition 335 and 345 or equivalent. Morris

- 664 (644, 646). **Science and Experimental Foods.** (3:2:3) Arr. Prerequisite: Food and Nutrition 564. Bennion

Protein foods; simple colloidal systems; gels, emulsions, and foams.

- 666 (646, 648). **Science and Experimental Foods.** (3:2:3) Arr. Prerequisite: Food and Nutrition 564. Bennion

Batters, doughs, and starch-thickened products.

- 672 (622). **Recent Advances in Foods.** (2:2:0) Arr. Prerequisite: Food and Nutrition 654 or equivalent. Bennion

- 675 (625). **Recent Advances in Nutrition.** (2:2:0) Arr. Prerequisite: Food and Nutrition 535 or equivalent. Morris

- 690 (696). **Seminar in Food.** (1-2:1-2:0) F. Staff

- 691 (697). **Seminar in Nutrition.** (1-2:1-2:0) S. Staff

- 694 (694). **Independent Project in Food and Nutrition.** (1-3:0:3-9) Arr. Prerequisite: Food and Nutrition 695 or 696. Staff

- 695 (684). **Methods of Research in Nutrition.** (2:1:4) F. Prerequisite: Food and Nutrition 535. Staff

- 696 (685). **Methods of Research in Foods.** (2:1:4) Arr. Prerequisite: Food and Nutrition 564. Staff

- 699 (699). **Thesis for Master's Degree.** (2-4:2-4:0) Staff

Geography

Associate Professor: Fisher (chairman, 366 McKay).

Assistant Professors: Layton, Tuttle.

Requirements

A candidate for a master's degree in geography must meet the requirements for the undergraduate major and must include in his graduate program Geog-

raphy 601, 620, 698, 699, and additional courses as determined by consultation with the chairman of his advisory committee.

Advanced Undergraduate or Graduate Courses

- 504 (570). **Geographic Field Techniques.** (2:1:2) S. Offered 1960-61 and alternate years. For majors only. Staff
- 522 (565). **Urban Geography.** (2:2:0) F. Layton
Distribution of urban areas, their development, internal land use patterns, and functions in the world's economy.
- 533 (560). **Industrial Geography.** (3:3:0) S. Prerequisite: Geography 231. Layton
A systematic analysis of location patterns of major industries in the United States, raw materials, power resources, and other factors in industrial location.
- 552 (611). **United States.** (2:2:0) Offered 1961-62 and alternate years. Prerequisite: Geography 351 Tuttle
A concentrated study of various phases of the geography of the U.S. Considerable research and reporting by individual students will be expected.
- 556 (621). **South America.** (2:2:0) Offered 1961-62 and alternate years. Prerequisite: Geography 455. Layton
Physical and cultural landscapes of geographic regions of South America.
- 557 (622). **Caribbean Area.** (2:2:0) Offered 1962-63 and alternate years. Prerequisite: Geography 455. Layton
- 561 (531). **Western Europe and the Mediterranean.** (2:2:0) S. Offered 1960-61 and alternate years. Prerequisite: Geography 460. Staff
A comprehensive study of the systematic and regional geography of non-Communist Europe.
- 562 (532). **U.S.S.R. and Its Satellites.** (2:2:0) Offered 1960-61 and alternate years. Prerequisite: Geography 460 or 470 or consent of instructor. Tuttle
A concentrated study of the physical features, resources, agriculture, industries, and distribution of peoples.
- 571 (641). **Orient.** (2:2:0) F. Offered 1960-61 and alternate years. Prerequisite: Geography 470. Staff
A comprehensive study of the systematic and regional geography of the Orient.
- 585 (580). **Geography of Underdeveloped Areas.** (2:2:0) S. Prerequisite: consent of instructor. Staff
A study of physical, economic, and human geography as it affects the world's underdeveloped areas with emphasis on future development possibilities.
- 598 (598). **Seminar.** (1:1:0) Arr. Staff

Graduate Courses

- 601 (New). **Physical Geography.** (2:1:2) F. Staff
- 620 (New). **Cultural Geography.** (2:1:2) S. Staff
- 690, 691 (690, 691, 692). **Readings.** (1:1:0) F.S. Staff
- 695 (695). **Special Problems.** (1-2:1-2:0) F.S. Staff
- 696, 697. (605, 606, 607). **Research.** (2:2:0) F.S. Staff
- 698 (698). **Graduate Seminar.** (1:1:0) Arr. Staff
- 699 (699). **Thesis for Master's Degree.** (1-4:1-4:0) F.S. Staff

This course also carries geography credit:

- History 585 (585). **Historical Geography of the United States.** (2:2:0)

Geology

Professors: Bullock (chairman, 291 ESC), Bissell, Hansen.

Associate Professors: Hintze, Rigby.

Assistant Professors: Bushman, Clark, Phillips.

Instructors: Brimhall, Warner.

Fields

Economic Geology and Mineralogy
Stratigraphy, Sedimentation, and Paleontology
Structural, Field, and Dynamic Geology

Requirements

The following courses, or their equivalents from another university, are prerequisite for all geology students who work toward an advanced degree in geology: Geology 111, 112, 251, 252, 311, 312, 313, 460, 470, and 480. A summer field camp, Geology 410, or its equivalent at another institution, is a necessary prerequisite.

The Department of Geology offers training for the master's degree and the degree of Doctor of Philosophy, with specialization in the various fields of geology. The graduate student is urged to acquire a broad foundation in geology and to secure adequate training before he concentrates on a chosen branch of the subject. To this end certain fundamental course work is recommended for all students. The course offerings are sufficiently varied and complete in order that all the students may select courses according to their needs and inclinations in consultation with their advisers.

It is expected that graduate students will meet all the general requirements for advanced degrees as outlined by the Graduate School. The responsibility of meeting these requirements rests with the student. Thesis work, intended to be investigative in character, must be of professional caliber. It is expected that the candidate for an advanced degree will make original contributions, develop new ideas, and complete a thesis or dissertation suitable for publication.

The graduate program of the Department of Geology offers instruction in three broad divisions of geology, with the following course offerings in each division: (1) economic geology and mineralogy—Geology 520, 540, 545, 551, 621, 641, 646, 653, 655, 661, and 662; (2) stratigraphy, sedimentation, and paleontology—Geology 574, 575, 576, 580, 581, 670, 671, 678, 680, 681, 682, 684, 685; and (3) structural, field, and dynamic geology—Geology 507, 511, 512, 530, 535, 610, and 615.

A student may select any one of the three divisions for a major. He may elect one or both of the remaining divisions for his minor(s). Geology 507, 512, and 551 are required of all graduate students. Geology 696, 698, 699, and 799 are variable credit courses commensurate with work completed in each of these areas. A student should not register for Geology 699 or 799 until he has essentially completed his research and is prepared to write his thesis or dissertation.

Master's Degree. (For general requirements see Graduate School regulations). Requirements for a master's degree in geology include: (1) at least fifteen hours of formal course work in the major field and at least ten hours of formal course work in one or two minor fields; (2) a written exploratory examination at the beginning of the graduate program; (3) a comprehensive oral examination on the graduate course work prior to his thesis defense; (4) a thesis embodying the results of research under a faculty member's supervision; and (5) a final oral examination on the research thesis.

Doctor of Philosophy Degree. (For general requirements see Graduate School regulations.) Requirements for a Doctor of Philosophy degree in geology include: (1) a minimum of thirty hours of formal course work in the major field and a minimum of fifteen hours of formal course work in each of two minor fields (one of the minors may be in a related field outside of the Department of Geology in which upper division and graduate courses will be acceptable); (2) one degree

or one year of acceptable graduate study at another institution; (3) a comprehensive examination after sixty hours of graduate work and at least one academic year prior to graduation; (4) a dissertation embodying the results of original research; and (5) defense of his dissertation before a formally appointed committee at the close of his final year of study.

Advanced Undergraduate or Graduate Courses

- 501 (501). **Rocks and Minerals.** (2:2:0) F.Su. Staff
Introductory study of fundamentals of rock and mineral classification and identification. Designed to acquaint the student with the earth's common raw materials, their occurrences, and uses. For students other than geology majors.
- 502 (502). **Geology for Teachers.** (2:2:0) S.Su. Home Study also. Bushman
A course designed to acquaint the teacher with methods and procedures for teaching geology and with sources of information, projects, and illustrative materials useful in the classroom.
- 507 (507). **Founders and Concepts in Geology.** (2:2:0) F. Bushman
- 511 (511). **Geomorphology.** (3:3:0) S. Bushman
- 512 (512). **Geology of the United States.** (4:4:0) S. Hansen
- 520 (520). **Petroleum Geology.** (4:4:0) F.Su. Hintze
- 530 (530). **Engineering Geology.** (3:3:0) F. Warner
- 535 (535). **Ground Water.** (4:4:0) S. Warner
- 540 (540). **Geophysics.** (3:3:0) F. Prerequisites: Math 213; Physics 213. Brimhall
- 545 (645). **Geochemistry.** (3:3:0) F. Prerequisites: Math 213; Physics 213. Brimhall
- 551 (651). **Optical Petrography.** (5:3:4) F. Prerequisites: Geology 252; Physics 202 or 213. Phillips
- 574 (475). **Principles of Stratigraphy.** (2:2:0) F. Bissell
- 575 (575). **Pre-Cambrian and Paleozoic Stratigraphy.** (3:3:0) F. Hintze
- 576 (576). **Mesozoic and Cenozoic Stratigraphy.** (3:3:0) S. Bushman
- 580 (580). **Invertebrate Paleontology (Protozoans through Brachiopods).** (4:3:2) F. Prerequisite: Geology 480. Clark
- 581 (581). **Invertebrate Paleontology (Mollusks through Hemichordates).** (4:3:2) S. Prerequisite: Geology 580. Clark
- 591, 592 (591, 592, 593). **Seminar.** (1:1:0 ea.) F.S. Staff

Graduate Courses

- 610 (610). **Structural Geology.** (3:3:0) S. Hintze
- 615 (615). **Photogeology.** (3:1:4) S. Hintze
- 621 (621). **Oil Field Development.** (3:3:0) S. Warner
- 641 (641). **Geophysical Exploration.** (5:4:2) S. Not given this year. Staff
- 646 (646). **Geochemical Techniques and Mineral Prospecting.** (3:2:2) S. Prerequisite: Geology 545. Brimhall
- 653 (653). **Determinative Mineralogy.** (5:3:4) S. Prerequisite: Geology 551. Phillips
- 655 (655, 656). **Igneous and Metamorphic Petrology.** (5:4:2) S. Bullock
- 661 (661). **Ore Deposits.** (4:3:2) F. Prerequisite: Geology 460. Bullock
- 662 (662). **Non-Metallic Deposits.** (3:3:0) F. Phillips
- 670 (670, 673). **Sedimentation and Sedimentary Tectonics.** (4:3:2) F. Bissell
- 671 (671, 672). **Sedimentary Petrology and Petrography.** (4:3:2) S. Bissell
- 678 (678). **Subsurface Stratigraphy.** (4:2:4) F. Bushman
- 680 (680). **Micropaleontology.** (3:2:2) F. Prerequisite: Geology 480 or 581. Clark
- 681 (681). **Quantitative Paleontology.** (3:3:0) F. Prerequisite: Geology 480 or 581. Rigby

- 682 (682). Vertebrate Paleontology. (3:3:0) S. Prerequisite: Geology 480 or 581. Clark
- 684 (684). Stratigraphic Paleontology. (3:2:2) S. Prerequisite: Geology 480 or 581. Rigby
- 685 (685). Paleocology. (4:3:2) S. Rigby
- 696 (696). Readings and Conference in Geology. (1-4:1-4:0) F.S.Su. Staff
- 698 (698). Research. (1-4:1-4:0) F.S.Su. Staff
- 699 (699). Thesis for Master's Degree. (1-4:1-4:0) F.S.Su. Staff
- 799 (799). Dissertation for Doctor of Philosophy Degree. (Arr.) F.S.Su. Staff

Health Education

Associate Professor: Nicholes.

Assistant Professors: Watters (chairman, 238 SFH), Duerden, Robison.

Requirements

The basic requirements for the master's degree in health education are the same as the general Graduate School requirements. In addition, an oral examination will be administered to each student early in the first semester. The purpose of the examination is to give guidance in the courses and studies leading to the master's degree. Recommended courses will be set up after consultation with the college graduate chairman and the major chairman.

Advanced Undergraduate or Graduate Courses

- 501 (501). Health Education Workshop. (1-2:Arr.:O) F.S.Su. Staff
Intended primarily for extension credit and/or summer school. Involves a presentation of health education problems followed by discussions—conducted on a workshop basis.
- 521 (521). Evaluation and Selection of School Health Material. (2:2:0) F. Duerden
Pamphlets, brochures, films, textbooks, and other school health resource materials are evaluated and selected for present and future use.
- 530 (530). First Aid Instructor. (2:2:1) F. Watters
A course designed to qualify instructors in Red Cross first aid, in order that they may conduct classes to qualify individuals for standard and advanced Red Cross cards.
- 551 (551). Field Work in Community Health. (2:Arr.:Arr.) S. Prerequisite: Health 451. Duerden
Designed to broaden the understanding of community health agencies, their roles, programs, and relationships. This is accomplished by field introductions to the various official and voluntary health agencies followed by the selection of agencies in which to do field work during the quarter.

Graduate Courses

- 693 (693). Research in Health Sciences. (2:1:2) F.S. Staff
Independent and/or directed research in problems associated with the health sciences. This course gives credit to those graduate students involved in directed or independent research from grant-in-aid, fellowship, or contract grant support.
- 694 (694). Seminar in Readings. (2:2:0) S.Su. Staff
- 696 (696). Seminar in Problems. (1:1:0) F.Su. Staff
- 698 (698). Field Project. (1-4:Arr.:Arr.) S. Staff
- 699 (699). Thesis for Master's Degree. (1-4:2-5:0) F.S.Su. Staff

These courses also count in Health Education:

- Recreation 337 (537). Philosophy of Recreation. (2:2:0)
- Sociology 580 (580). Social Relations in Medical Health Organizations. (2:2:0)
- Zoology 662 (662, 663). Advanced Physiology. (2:2:0)

History

Professors: Campbell (chairman, 332 McKay), Hafen, Poll, Swensen.

Assistant Professors: Addy, Fielding, Hyer, Jensen.

Requirements

The Department of History offers work leading to the Master of Arts, Master of Science, and Doctor of Philosophy degrees.

A student undertaking work toward a graduate degree in history is expected to offer an undergraduate major in the subject, or its equivalent. He is expected to complete, outside his graduate degree program, any courses which are specifically listed in the undergraduate major program of this University which he has not already taken. In addition to the documents required by the University for admission to degree-seeking status, the prospective student is asked to provide the department with a term paper or comparable example of his undergraduate written work in history. Unless he has already taken the departmental senior comprehensive examination as an undergraduate, he may be asked to take it prior to admission to degree-seeking status; in either case a grade of "B" is ordinarily prerequisite for such admission. Where remediable deficiencies in preparation are believed to exist, the department may prescribe undergraduate course work as a condition of admission.

Master's Degree:

The requirements for a Master of Arts or Master of Science degree in history are the general requirements of the Graduate School.

Doctor of Philosophy Degree:

The requirements for a Doctor of Philosophy degree in history include the general University regulations on minimum full-time study, time limit, committee supervision, and language proficiency of the Graduate School, with these additional provisions:

At least two semesters of the required full-time study at Brigham Young University must be consecutive.

Upon completion of the master's degree or at the end of the first year of graduate study, the student must obtain the approval of the department to continue study toward the doctorate degree.

Course Requirements. Course work in the following areas must be completed:

Historiography and methods of historical research

Methods of teaching history in college

A course in the 600 series in each of the fields offered for examination

Subject Examinations. When, in the opinion of the advisory committee, the student is ready, and in no case earlier than the beginning of the second year of graduate study, he may take the subject examinations in the following sequence:

Written Examinations: The student is required to show familiarity with fundamental historiography and with the basic structure and developments in (1) the area of major emphasis and research, (2) three additional areas of history, and (3) a related area offered in a department other than history. Both hemispheres must be represented in the history areas chosen. The areas of history are:

Ancient History

Medieval History

Early Modern European History (1500-1815)

Modern European History (1789-present)

Latin American History

History of Asia

United States History (to 1865)

United States History (since 1865)

Western American History

Oral Examination: The oral examination, which must be taken not less than six months prior to the awarding of the degree, deals intensively with the factual

structure, major concepts and interpretations, and bibliography in the field of major emphasis and research, and reviews also the additional areas of history and the related outside area.

All the written examinations must be satisfactorily completed before the oral examination may be taken. In the event of failure, any examination may be repeated once, not less than one quarter after the unsatisfactory performance. Successful completion of the subject examinations is the basis for advancement to candidacy for the doctor's degree.

Dissertation. The student must present a dissertation which represents an original contribution to historical knowledge and which shows ability to use sources in a discriminating way. In a final oral examination, he is tested on the historical setting, subject and methods of the dissertation, and is expected to defend its conclusions.

Advanced Undergraduate or Graduate Courses

- 512 (512). **Medieval Thought and Culture.** (3:3:0) S. (1960-61 and alternate years.) Swensen
- 522 (522). **Nineteenth Century Europe.** (2:2:0) S. (1960-61 and alternate years.) Addy
- 525 (525). **European Diplomatic History since 1815.** (2:2:0) F. (1960-61 and alternate years.) Jensen
- 528 (528). **Modern European Thought and Culture.** (2:2:0) (1961-62 and alternate years.) Jensen
- A study of the most influential ideas and intellectual movements of the last three centuries.
- 548 (548). **Culture of Asia.** (2:2:0) (1961-62 and alternate years.) Hyer
- 562 (562). **American Westward Movement to 1825.** (3:3:0) F. Hafen
- 563 (563). **American Westward Movement after 1825.** (3:3:0) S. Hafen
- 572 (572). **American Revolution and the Confederation.** (2:2:0) S. Fielding
- 579 (579). **Contemporary United States History.** (2:2:0) F. Poll
- 585 (585). **Historical Geography of United States.** (2:2:0) S. (1960-61 and alternate years.) Staff

Graduate Courses

- 606 (606). **Greek Thought.** (2:2:0) F. (1960-61 and alternate years.) Swensen
- 618 (618). **Renaissance and Reformation.** (2:2:0) (1961-62 and alternate years.) Jensen
- 621 (621). **Modern Europe.** (2:2:0) S. (1960-61 and alternate years.) Jensen
- 640 (640). **The Far East.** (2:2:0) F. (1960-61 and alternate years.) Hyer
- 650 (650). **Latin America.** (2:2:0) (1961-62 and alternate years.) Addy
- 656 (656). **Southwestern United States.** (2:2:0) S. (1960-61 and alternate years.) Hafen
- 670 (670). **Colonial America.** (2:2:0) (1961-62 and alternate years.) Fielding
- 675 (675). **The New Nation, 1787-1815.** (2:2:0) F. (1960-61 and alternate years.) Hunt
- 676 (676). **Jacksonian America.** (2:2:0) (1961-62 and alternate years.) Fielding
- 677 (677). **Civil War and Reconstruction.** (2:2:0) S. (1960-61 and alternate years.) Poll
- 678 (678). **American Industrial Revolution.** (2:2:0) (1961-62 and alternate years.) Poll
- 694 (694). **Seminar in European History.** (2:2:0) F. Staff
- 695 (695). **Seminar in Western American History.** (2:2:0) F. Staff
- 696 (696). **Seminar in United States History.** (2:2:0) S. Staff
- 697 (697). **Seminar in Utah History.** (2:2:0) S. Staff
- 698 (698). **Special Readings in History.** (1-2:0:Arr.) F.S.Su. Staff

699	(699). Thesis for Master's Degree. (1-4:0:Arr.) F.S.Su.	Staff
799	(799). Dissertation for Doctor's Degree. (1-4:0:Arr.) F.S.Su.	Staff

These courses also count in History:

Political Science 557	(557). Government and History of Canada. (3:3:0)
Political Science 571	(571). Development of American Foreign Policy. (3:3:0)
Political Science 595	(306, 595). American Constitutional History. (3:3:0)

History and Philosophy of Religion

Professors: Nibley, Rich, Yarn.

Associate Professor: Riddle.

Assistant Professors: Madsen (chairman, 218 S), Andrus, Barrett, Barron, Clark, Horsley, Larson, Patch, Shaw.

Requirements

The Department of History and Philosophy of Religion offers training leading to the Master of Arts, Master of Science, and Doctor of Philosophy degrees. A student must have adequate preparation on the undergraduate level before beginning work leading to one of these degrees. The admissions committee of the graduate faculty of religion will determine if the student is properly prepared.

Each student must fill all the general regulations and requirements for advanced degrees as outlined by the Graduate School. **The responsibility of knowing and fulfilling these regulations and requirements rests with the student.**

A statement of detailed requirements and procedures of the graduate program in religion may be obtained upon request from the dean of the College of Religious Instruction.

Master's Degree

Before a student is admitted on a degree-seeking basis, the admissions committee of the graduate faculty of religion will carefully study and evaluate his preparation and fitness for a graduate program. After acceptance, the student must select his advisory committee in consultation with the admissions committee, and must acquire at least 15 semester hours of formal course or seminar work in his major field and 10 semester hours of formal course or seminar work in his minor field; write an acceptable thesis embodying the results of research under faculty supervision; and successfully pass an oral examination.

Doctor of Philosophy Degree

The student must achieve a thorough mastery of his major, minor, and related fields, a program which will require a minimum of 90 semester hours credit. Part of this requirement may be fulfilled in the completion of the "core" courses listed below.

All doctoral candidates must have an adequate knowledge of at least two foreign languages which will assist them in graduate studies, one of which must be German or French. One foreign language is required before admission to the doctoral program. The other must be mastered before completion of the "core" requirements. Upon completion of the "core" requirements with distinction ("B" grade or better), a program normally requiring two years, a student must pass a series of written comprehensive examinations and an oral examination on the subject-matters represented in the "core" courses. The student will not be awarded the Ph.D. degree until at least two semesters following the successful completion of these examinations. Should the student fail the examinations, the question of whether or when he may repeat them will be determined by his advisory committee in consultation with the admissions committee. The comprehensive examinations may not be attempted more than twice. In addition to the "core" requirements the student will be expected to complete at least 30 hours of specialization in his major and minor fields.

When a student successfully completes his language requirements, his writ-

ten and oral comprehensive examinations, and the presentation of his dissertation topic, he is certified by the dean of the Graduate School as an official candidate for the doctor's degree. Having selected his topic in consultation with his advisory committee, he must write a satisfactory dissertation embodying the results of original research. Thereafter, the candidate must defend his dissertation before a formally appointed committee.

"CORE" COURSES. Bible and Modern Scripture (Bible) 411, 501, 502, 503, 511, 512; (Modern Scripture) 527, 621, 624; History and Philosophy of Religion (Church History) 441, 442, 645, 646; (Christian History) 451, 452; (World Religions) 555, 556, 657, 658; (Philosophy) 480, 580, 581, 583, 584; Religious Education 670.

PHILOSOPHY

Advanced Undergraduate or Graduate Courses

- 580 (571, 572). **History of Ancient Philosophy.** (3:3:0) F.Su. Yarn
Western philosophy from the 6th century B.C. to the 5th century A.D.
- 581 (572, 573). **History of Modern Philosophy.** (3:3:0) S.Su. Yarn
Western philosophy from the 6th century to the 19th century.
- 582 (420). **Contemporary Ethics.** (2:2:0) S.Su. Patch, Madsen
Examination of the meaning and function of moral judgments and the bases of ethical commitment.
- 583 (425). **Philosophy of Science.** (2:2:0) F.S.Su. Riddle
Examination of the conceptual framework of modern science.
- 584 (562). **Current Trends in Philosophy of Religion.** (2:2:0) F.S.Su. Madsen
- 585 (574). **Contemporary Anglo-American Philosophy.** (2:2:0) F.Su. Madsen
Men and movements in naturalism and logical positivism.
- 586 (579). **Contemporary Continental Philosophy.** (2:2:0) S.Su. Madsen
20th century developments in existentialism, phenomenology, and Marxism.
- 587 (546). **Scholasticism, Humanism, Mysticism.** (2:2:0) F.S.Su. Horsley

Graduate Courses

- 681 (651). **Seminar: Philosophical Analysis.** (2:2:0) S.Su. Riddle
- 682 (New). **Seminar: History of Philosophy.** (2:2:0) S.Su. Yarn
- 683 (653). **Seminar: Philosophy of Religion.** (2:2:0) S.Su. Madsen
- 688 (New). **Readings.** (1-4:1-4:0) F.S.Su. Staff

HISTORY AND PHILOSOPHY OF RELIGION

Advanced Undergraduate or Graduate Courses

- 545 (307). **Great Figures of L.D.S. Church History.** (2:2:0) F.S.Su. Barrett
Biographical study of significant L.D.S. Church personalities of the first half century of the restoration.
- 546 (524). **Social, Economic and Political Thought of Joseph Smith.** (2:2:0) F.S. Andrus
- 551 (514). **The Primitive Church.** (2:2:0) F. Nibley
- 552 (515). **Christianity in the Second and Third Centuries.** (2:2:0) F.S. Nibley
- 553 (351). **Great Figures in Christian History.** (2:2:0) F.S.Su. Horsley
Biographical study of significant Christian personalities and their contributions to Christianity from Paul to Joseph Smith.
- 554 (352). **Martin Luther, Forerunner of the Restoration.** (2:2:0) F.S.Su. Horsley
Study of Luther's life, theology, and influence upon Protest-Christiansity, with special emphasis upon the significance of Luther for Mormonism.
- 555 (581, 582). **Comparative World Religions.** (2:2:0) F.Su. Rogers
Hinduism, Jainism, Sikhism, Buddhism.

- 556 (582, 583). **Comparative World Religions.** (2:2:0) S.Su. Rogers
 Toaism, Confucianism, Shintoism, Judaism, Zoroastrianism, and Islam.
 557 (551, 553). **Comparative World Rites and Liturgy.** (2:2:0) F. Nibley
 558 (552). **Islam.** (2:2:0) S. Nibley

Graduate Courses

- 641, 642 (621, 622, 623). **Special Problems in L.D.S. Church History.** (2:2:0 ea.) F.S.Su. Andrus, Larson, Rich
 645, 646 (531, 532, 533). **Historical Development of L.D.S. Doctrine and Practices.** (2:2:0 ea.) F.S.Su. Andrus, Rich
 653 (544). **History of the Papacy.** (2:2:0) F.Su. Horsley
 654 (632). **Reformation and Counter-Reformation.** (2:2:0) S.Su. Horsley
 657, 658 (647, 648, 649). **Comparative Studies in American Religions.** (2:2:0 ea.) F.S. Horsley
 699 (699). **Thesis for Master's Degree.** (1-4:1-4:0) F.S.Su. Staff
 748 (New). **Readings in L.D.S. Church History.** (1-2:1-2:0) F.S.Su. Andrus, Larson, Rich
 755 (New). **Seminar: History of Religion.** (2:2:0) F.S.Su. Andrus, Horsley, Larson, Rich
 758 (New). **Readings in Christian History.** (1-2:Arr.:Arr.) F.S.Su. Horsley, Nibley
 759 (New). **Readings in the History of World Religion.** (1-2:1-2:0) F.S.Su. Nibley, Rogers
 799 (799). **Doctoral Dissertation.** (1-4:Arr.:Arr.) F.S.Su. Staff

Human Development and Family Relationships

Professors: Porter (chairman, 1239 SFLC), Cannon.

Associate Professor: Anderson.

Instructors: Holbrook, Kunz.

Requirements

The Department of Human Development and Family Relationships offers training leading to the Master of Arts, Master of Science, and Doctor of Philosophy degrees. A student must have adequate preparation on the undergraduate level before beginning work leading to one of these degrees. The admissions committee of the graduate faculty of the Department of Human Development and Family Relationships will determine if the student is properly prepared.

The College of Family Living carries an affiliation with the Merrill-Palmer School in Detroit. Students interested in various phases of child development, parent education, social service work, marriage counseling, college teaching, or extension work in human development and family relationships may apply to spend one year in graduate study at the Merrill-Palmer School, with credit applying toward graduation at Brigham Young University. A limited number of graduate assistantships are available each year for work at the Merrill-Palmer School.

Master's Degree

(For general requirements see Graduate School regulations)

Requirements for a master's degree in human development and family relationships include a general examination at the beginning of the graduate program to establish the student's mastery of basic undergraduate courses in H.D.F.R.; at least 15 hours of formal course work in the human development and family relationships field, and at least 10 hours of course work in a minor field; a thesis prepared under the direction of the student's advisory committee in which he interprets and reports the results of his research work; and a final examination in all aspects of human development and family relationships with the student's research thesis as the focus of attention.

Doctor of Philosophy Degree

(For general requirements see Graduate School regulations)

Requirements for a Doctor of Philosophy degree in human development and family relationships include successful completion of a minimum of three years of full-time study, at least two of which, including the last, must usually be at Brigham Young University; an advisory evaluative examination to be administered after the completion of one year of graduate work, to be used in determining the student's qualifications to continue graduate studies and to help plan his program; a minimum of two graduate courses in each of the following areas: child development, family relationships, research methodology and statistics, and counseling theory and practice; one year of residence at the Merrill-Palmer School in Detroit (one year's study at another institution may be accepted upon approval of the student's advisory committee); comprehensive examinations, both written and oral, covering the general areas of human development and family relationships and the chosen minor fields; work in the major field plus one or two minors in related areas as determined by the student and his advisory committee; a dissertation embodying the results of original research; and an oral presentation and defense of his dissertation before a formally appointed committee.

Advanced Undergraduate or Graduate Courses

510, 511 (405, 510). Advanced Child Development. (3:3:0 ea.) F.S. Prerequisite: H.D.F.R. 210. Kunz, Porter

Intensive study of principles of child development and behavior as they relate to home situations, nursery schools, day-care centers, and other children's programs. Observation of individuals from infancy through adolescence.

570 (570, 572). Community and Professional Responsibilities to Children and Families. (3:3:0) S. Prerequisites: H.D.F.R. 210, 361; Sociology 111. Porter

Acquaintance with resources of the community as they relate to the welfare of children and families. A consideration of the responsibilities of professional persons working with children and families.

575 (575). Parent Education. (2:2:0) S. Prerequisite: consent of instructor. Kunz, Porter

Basic principles in organization of parent study programs. Formulation and presentation of programs for parents.

580 (580). Introduction to Marriage and Family Counseling. (2:2:0) F. Prerequisite: consent of instructor. Anderson

Theories and techniques used in marriage and family counseling. Consideration of individual and group counseling as it pertains to the family.

590 (590). Readings in Human Development and Family Relationships. (1-2:1-2:0) F.S.Su. Prerequisite: consent of instructor. Anderson, Cannon, Porter

Discussions and reports of current readings in this field. Open to students who have completed fifteen hours of human development and family relationships.

595 (595). Special Topics in Human Development and Family Relationships. (1-2:1-2:0) F.S.Su. Anderson, Cannon, Porter

Individual study for qualified students majoring in human development and family relationships upon consultation with the instructor and the chairman of the department.

596 (596). Research Problems and Methods in Human Development and Family Relationships. (2:2:0) F. Cannon

Analysis of research methods used in human development and family relationships. Students have active experience in formulating a research project.

Graduate Courses

611 (611). Current Concepts and Research in Child Development. (2:2:0) F. Porter

661 (661). Dynamics of Family Interaction. (2:2:0) S. Prerequisite: H.D.F.R. 360. Porter

- 663 (663). Critical Problems in Family Life. (2:2:0) F. Prerequisite: H.D.F.R. 361. Cannon
- 664 (664). Current Concepts and Research in Family Relationships. (2:2:0) S. Porter
- 666 (666). Family Problems of High School Students. (2:2:0) Su. Staff
- 667 (667). Problems of Teaching Marriage and Family Relationships in College. (2:2:0) Su. Staff
- 685 (685). Developmental Use of Play Experiences. (2:2:0) S. Prerequisite: consent of instructor. Staff
- 692, 693 (692, 693). Seminar. (2:2:0 ea.) F.S. Anderson, Cannon, Porter
- 697 (697). Independent Research. (1-3:1-3:0) F.S.Su. Anderson, Cannon, Porter
- 699 (699). Thesis for Master's Degree. (1-4:1-4:0) F.S.Su. Anderson, Cannon, Porter
- 780 (780). Marriage and Family Counseling. (2:2:0) F. Prerequisites: H.D.F.R. 580; E.R.S. 625; consent of instructor. Anderson
- 781 (781). Case Analysis in Marriage Counseling. (2:2:0) S. Prerequisite: H.D.F.R. 780. Anderson
- 785, 786 (785, 786, 787). Internship in Marriage Counseling. (3:1:6 ea.) F.S. Prerequisites: H.D.F.R. 780 and 781. Staff
- 792 (792). Seminar in Marriage Counseling. (2:2:0) S. Anderson
- 794 (794). Special Topics in Human Development. (1-2:1-2:0) F.S.Su. Anderson, Cannon, Porter
- 795 (795). Special Topics in Family Relationships (1-2:1-2:0) F.S.Su. Anderson, Cannon, Porter
- 797 (797). Doctoral Candidate Research. (2-4:2-4:0) F.S.Su. Anderson, Cannon, Porter
- 799 (799). Dissertation for the Ph.D. Degree. (Arr.) F.S.Su. Anderson, Cannon, Porter

Instruction

Professors: Callahan, Clarke, Law.

Associate Professors: D. Christensen (chairman, 153 McKay), Campbell, Read.

Assistant Professors: Alder, Babcock, L. Christensen, Crnkovic, Daines, Flandro, McPhie, Ord, Tyndall, Utley, Wilcox.

Instructors: Memmott, Rogers.

Fields

Elementary Instruction, Secondary Instruction

Requirements

Graduate students majoring in the Department of Instruction must give evidence of sufficient background in public school work to enable them to successfully undertake graduate study. A major in this department is designed to provide specifically the needs of public school supervisors, directors of curriculum, individuals seeking to become master teachers at the elementary or secondary levels, and other public school personnel with particular interests in the instructional area.

Graduate Majors Are Required to Take the Following Courses:

1. E.R.S. 606, Behavior Problems in the Schools.
2. E.R.S. 410, Tests and Measurements for Classroom Teachers.
3. Instruction 605, Development of Instructional Materials.
4. Ed. Phil. 604, Comparative Current Educational Philosophy.
5. E.R.S. 601, Advanced Educational Psychology.

6. Instruction 631, Curriculum Development in the Elementary School.
(Not open to students who have taken Instruction 656.)

or

Instruction 656, Curriculum Development in the Secondary School.
(Not open to students who have taken Instruction 631.)

7. Instruction 646, Development of Instructional Methods in the Elementary School.
(Not open to students who have taken instruction 676.)

or

Instruction 676, Development of Instructional Methods in the Secondary School.
(Not open to students who have taken Instruction 646.)

8. Ed. Phil. 662, Philosophy of Program Planning.
9. E.R.S. 641, Educational Research and Thesis Writing.

Graduate Minors Are Required to Take the Following Courses:

1. Instruction 631, Curriculum Development in the Elementary School (or Instruction 656, Curriculum Development in the Secondary School) and Instruction 646, Development of Instructional Methods in the Elementary School (or Instruction 676, Development of Instructional Methods in the Secondary School).
2. One of the following:
Ed. Phil. 604, Comparative Current Educational Philosophy.
Ed. Phil. 662, Philosophy of Program Planning.
3. One of the followings:
E.R.S. 410, Tests and Measurements for Classroom Teachers.
E.R.S. 601, Advanced Educational Psychology.
E.R.S. 606, Behavior Problems in the Schools.
4. A sufficient number of semester hours in electives chosen by the graduate student in consultation with his minor professor so that the course work in the minor area will total a minimum of ten.

Advanced Undergraduate or Graduate Course

- 534 (529, 534). Improved Practices in Elementary Teaching. (3:3:1) F.Su.**

Staff

Study of current concepts in elementary education with observation and analysis of some of the best practices. Designed to meet the needs of speech majors, persons seeking a refresher course, and prospective administrative personnel in the elementary schools.

Graduate Courses

- 605 (605). Development of Instructional Materials (Audio-Visual Aids). (2:2:1)**
F.S.Su. Prerequisite: Instruction 406 or equivalent.

Staff

An advanced course designed to follow Instruction 406. Principles of learning and the unique contributions of instructional materials to the curriculum. Of primary concern is the selection, integration, sources, and administration of instructional materials. Construction and use of specialized materials.

- 608 (608). Radio, Television, and Motion Picture Photography in Education. (2:2:1) Su.**

Staff

Utilization in the classroom and in public relations. Current programs, production techniques, recording of programs, and the role of mass media in learning. The development and potential of educational television is considered.

- 612 (612). Supervision of Student Teachers. (2:2:0) Su.**

Staff

For those desiring a well-rounded view of the student teaching program with emphasis on the specific role of the cooperating teacher.

- 614, 615, 616 (614, 615, 616). Analysis of In-Service Problems. (1-3:1-3:1) F.S.Su.**

Staff

- 622 (622). **Advanced Study in Early Childhood Education.** (2:2:0) F.Su. Staff
Theory and analysis of current practice in schools as related to the significance of early childhood education.
- 623 (623). **Science in the Elementary School.** (2:2:0) S.Su. Staff
Designed to give experienced teachers insight into the teaching of elementary science. Includes concentration in unit instruction and methods of presenting science concepts to children.
- 624 (624, 633). **Advanced Arts and Crafts for Elementary Teachers.** (2:2:1) F.Su. Prerequisite: consent of instructor. Staff
Exploring ideas and materials appropriate for children in the elementary school.
- 626 (626). **Arts and Crafts for the Handicapped.** (2:2:1) Su. Staff
Arts, crafts, and other media as they may be adapted to meet the needs of individuals with disabilities.
- 631 (631). **Curriculum Development in the Elementary School.** (2:2:0) F.Su. Not open to students who have taken Instruction 656. Staff
Study of principles and procedures for organizing the instructional program; patterns of curriculum organization; and techniques for change, evaluation and stabilization of the curriculum.
- 635 (635). **Social Studies in the Elementary School.** (2:2:0) S.Su. Staff
A refresher course emphasizing the scope and sequence of social studies program, its objectives in developing democratic citizenship, and the methods employed in accomplishing this aim.
- 641 (641). **Language Arts in the Elementary School.** (2:2:0) F.Su. Staff
Best practices in modern methods of instruction in listening, speaking, reading, and writing with their related skills.
- 642 (642). **Reading in the Elementary School.** (2:2:0) F.Su. Staff
An overview of the reading program; long term and daily planning problems analyzed; word attack skills reviewed; comparison of different programs discussed. Opportunities are provided students to work on their own problems in teaching reading.
- 644 (644). **Arithmetic in the Elementary School.** (2:2:0) S.Su. Staff
Concepts in arithmetic which children need, and various activities which will help students acquire correct arithmetical concepts. Special attention on the contributions of research in teaching arithmetic.
- 646 (646). **Development of Instructional Methods in the Elementary School.** (2:2:0) S.Su. Not open to students who have taken Instruction 676. Staff
Problems, principles, and issues of method. Assessing readiness, problems of organizing pupils for instruction, guiding and pacing, selection of materials, and evaluation.
- 656 (656). **Curriculum Development in the Secondary School.** (2:2:0) S.Su. Not open to students who have taken Instruction 631. Staff
Analysis of secondary curriculum development in terms of psychological and philosophical principles. Curriculum issues, trends, and current practices are examined.
- 659 (659, 661). **Secondary School Curriculum Workshop.** (2:2:0) F.S. Staff
- 663 (663). **Directing Out-of-Class Activities in Secondary Schools.** (2:2:0) S.Su. Staff
Examination of successful practices in scheduling and directing out-of-class activities. The effect of current scientific curriculum emphasis on out-of-class activities is explored.
- 667 (667). **Teaching of Reading in the Secondary Schools.** (2:2:0) Su. Staff
Methods of teaching reading in the secondary school and their adaptation. Role of the subject-matter specialist in the secondary reading program.
- 670 (670). **Teaching Mathematics and Science in Secondary Schools.** (2:2:0) S.Su. Staff
- 672 (672). **Teaching Social Studies in Secondary Schools.** (2:2:0) S.Su. Staff
Designed to broaden the understanding of curriculum and instruction

in secondary school social studies. Relates methods and techniques to the objectives of the social studies.

- 673 (673). Teaching Speech in Secondary Schools. (2:2:0) Su. Staff
 676 (676). Development of Instructional Methods in the Secondary School. (2:2:0) F.Su. Not open to students who have taken Instruction 646. Staff
 A general, intensive analysis of the instructional methods used at the secondary level utilizing principles developed from psychology, sociology, and philosophy.
 684 (684). Methods of Higher Education Instruction. (3:3:1) S. Staff
 685, 686 (685). Directed Teaching in Higher Education. (2:1:5 ea.) F.Su. Staff
 690, 691 (690, 691). Seminar. (1-2:1-2:0) S.Su. Staff
 693, 694 (693, 694). Independent Reading. (1-2:1-2:0) F.S.Su. Staff
 696, 697 (696, 697). Independent Research. (1-2:1-2:0) F.S.Su. Staff
 698 (698). Field Project. (Arr.) Arr. Staff
 699 (699). Thesis for Master's Degree. (1-4:Arr.:Arr.) Staff

The following courses also count in Instruction:

- Art 668 (668). Teaching Art in Secondary Schools. (1-3:Arr.:Arr.)
 Journalism 574 (674). Teaching Methods in Journalism. (2:2:0)
 Library Science 571 (571). Bibliography of the Sciences. (2:2:0)
 Library Science 572 (572). Bibliography of the Humanities. (2:2:0)
 Library Science 573 (573). Bibliography of the Social Sciences. (2:2:0)
 Library Science 585 (590). History of Books and Libraries. (2:2:0)
 Library Science 650 (650). Current Problems in the Technical Services. (2:2:0)
 Music 615 (615). Vocal Methods, Materials, and Resources. (2:2:0)
 Music 616 (616). Instrumental Methods, Materials, and Resources. (2:2:0)

Journalism

Professor: Smith

Assistant Professors: Paulson (chairman, 160 SSC), Butterworth, Davis.

Instructor: Burnett.

Requirements

The Department of Journalism offers work leading to the Master of Arts degree and Master of Science degree, with programs of individual students arranged to provide concentrations in areas of special interest. Special emphasis is given to programs in research, advertising-public relations, and teaching journalism in the secondary school and junior college.

Prospective majors are advised to consult the chairman of the department concerning background for graduate study in this field. Competence demonstrated in a qualifying examination or appropriate undergraduate courses may be required of students deficient in academic preparation or practical experience.

Students desiring to complete a graduate minor in journalism should consult the chairman of the department regarding a recommended program of study.

Advanced Undergraduate or Graduate Courses

- 561 (561, 564). Public Relations. (3:3:0) F.Su. Butterworth, Smith
 Philosophy and practice of public relations in business, governmental, educational and other institutions; study of publics, media, and methods. Case studies of public relations practice.
 563 (497). Projects in Public Relations. (1:0:3) F.S.Su. Butterworth
 Field projects in public relations practice for selected business, industrial, or non-profit institutions. (Limited to majors and minors.)

- 566 (566). Industrial Magazine Editing and Production.** (2:2:0) S. Prerequisite: Journalism 211, 301. Burnett
Principles of layout and design for house magazines and business publications. Contemporary problems in content and production.
- 574 (674). Teaching Methods in Journalism.** (2:2:0) Su. Prerequisite: Journalism 321 or equivalent. Staff
Teaching methods for journalism in the secondary school and junior college. Planning and supervising school newspapers. Disseminating school publicity in the public media.
- 576 (676). School Yearbook and Magazine Production.** (2:2:0) Offered in 1961-62 and alternate years. Staff
Planning and supervising production of school yearbooks and magazines, including copy, illustration, layout, printing, binding, and business management.

Graduate Courses

- 671 (671). Research Methods in Mass Communications.** (2:2:0) F. Smith
Research techniques in communication fields, including readership, readability, content analysis, and audience measurement. Introduction to thesis writing.
- 672 (672). Mass Communication and Society.** (3:3:0) S. Smith
Concepts of mass communication in contemporary society; critical evaluation of responsibilities and performance of the mass media of press, radio, television, and film.
- 680 (New). World Communication Channels.** (2:2:0) S. Burnett, Smith
Study of communication media in principal areas of the world. Problems of international communications and barriers to the flow of information between peoples.
- 690 (690). Seminar in Mass Communications.** (1:1:0) S.Su. Staff
- 691, 692 (691, 692, 693). Special Studies in Communication.** (1-3:Arr.:Arr.) F.S.Su. Staff
Individual work on approved problems not leading to a thesis. (Projects must be approved before registration.)
- 694 (694). Readings in Mass Communication.** (1-2:Arr.:Arr.) F.S.Su. Prerequisite: consent of instructor. Staff
- 699 (699). Thesis for Master's Degree.** (2-4:Arr.:Arr.) F.S.Su. Staff

The following course also may be taken for credit in Journalism:

Business Management 555 (555). Problems in Advertising. (3:3:0)

Languages

Professor Emeritus: Cummings.

Professors: de Jong, Lee, Nibley, Rogers, Watkins.

Associate Professors: Taylor (chairman, 324 McKay), Anderson, Clark, Valentine, Wilkins.

Assistant Professors: Brown, Gibson.

Fields

French, German, Greek, Latin, Portuguese, Spanish

Requirements

For full graduate standing in French, German, and Spanish, students must have completed courses 101, 102, 201, 301, 321, 322, 441, and 442 (previously numbered 101, 102, 103, 201, 202, 203, 204, 321, 322, 323, 441, 442, 443) in the language chosen as a major, or have an equivalent background. No provisional admission may be granted on a lesser background. Minors in these fields must have completed courses 101, 102, 201, and 301 (previously numbered 101, 102, 103, 201, 202, 203, 204) or have a fluent reading knowledge of the language

elected. For information concerning Greek, Latin, and Portuguese, consult the chairman of the department.

The major is in the language and literature of any one of the following languages: French, German, Portuguese, Latin, and Greek. The minor may be in a second language or in another department, subject to the approval of the advisory committee.

French

Advanced Undergraduate or Graduate Course

- 511 (511). **Materials and Techniques in Teaching French.** (2:2:1 ea.) F.Su.
Prerequisite: French 322 or consent of instructor. Clark, Lee, Staff

Graduate Courses

- 620 (601). **French Composition and Conversation.** (2:2:1) F. Clark, Lee
621 (621). **Introduction to Romance Philology.** (2:2:0) F. Clark
622 (622). **Old French Morphology and Phonology.** (2:2:0) S. Clark, Lee
643 (661). **Introduction to French Civilization.** (2:2:0) F. Clark, Lee
660 (631). **Old French Literature.** (2:2:0) S. Clark, Lee
665 (633). **French Literature of the Renaissance.** (2:2:0) S. Clark
670 (634). **French Literature of the 17th Century.** (2:2:0) F. Lee
674 (641). **Moliere.** (2:2:0) F. Clark, Lee
675 (635). **French Literature of the 18th Century.** (2:2:0) S. Clark, Lee
680 (651). **French Drama of the 19th Century.** (2:2:0) S. Lee
681 (653). **French Novel of the 19th Century.** (3:3:0) S. Clark, Lee
685 (637). **French Literature of the 20th Century.** (2:2:0) F. Clark, Lee
686 (652). **Modern French Drama.** (2:2:0) S. Clark, Lee
687 (654). **Modern French Novel.** (3:3:0) F. Clark, Lee
690, 691 (691, 692, 693). **Directed Readings in French.** (1-2:0:Arr.) F.S.Su.
Staff
692, 693 (691, 692, 693). **Seminar in Philology.** (1-2:1-3:0) F.S.Su. Staff
694-698 (691, 692, 693). **Seminar in French Literature.** (1-2:1-3:0) F.S.Su.
Staff
699 (699). **Thesis for Master Degree.** (1-4:Arr.:Arr.) F.S.Su. Staff

German

Advanced Undergraduate or Graduate Course

- 511 (511). **Materials and Techniques in Teaching German.** (2:2:1) F.S. Pre-
requisite: German 322 or consent of instructor. Rogers, Watkins

Graduate Courses

- 600 (661). **Cultural History of Germany.** (2:2:0) S.Su. Watkins
620 (601). **German Composition and Conversation.** (2:2:0) S.Su. Watkins
622 (666, 667). **Gothic and Old High German.** (5:5:0) F. Watkins
Introduction to comparative Germanic philology through a study of
linguistic forms in old Germanic languages, principally Gothic and Old
High German.
624 (668). **Middle High German.** (3:3:0) S. Watkins
643 (658). **German Lyric Poetry.** (2:2:0) F. Prerequisite: German 431, 432,
441, 442, or consent of instructor. Rogers
644 (651). **The German Drama.** (2:2:0) S. Prerequisite: German 431, 432,
441, 442, or consent of instructor. Anderson
645 (654). **The German Novel.** (2:2:0) F. Prerequisite: German 431, 432, 441,
442, or consent of instructor. Anderson

- 646 (656). *The German Novelle*. (2:2:0) S. Prerequisite: German 431, 432, 441, 442, or consent of instructor. Anderson
- 676 (541). *Lessing*. (2:2:0) F. Prerequisite: German 431, 432, 441, 442, or consent of instructor. Rogers
- 677 (542). *Schiller*. (2:2:0) S. Prerequisite: German 431, 432, 441, 442, or consent of instructor. Rogers
- 678 (543). *Goethe*. (2:2:0) F. Prerequisite: German 431, 432, 441, 442, or consent of instructor. Rogers
- 685 (637). *Contemporary German Literature*. (2:2:0) S. Prerequisite: German 431, 432, 441, 442, or consent of instructor. Anderson, Rogers
- 690, 691 (New). *Directed Readings*. (2:0:Arr.) F.S.Su. Anderson, Rogers, Watkins
- 692, 693 (691). *Seminar in Philology*. (2:2:0) S.Su. Watkins
- 694-698 (694). *Seminar in Literature*. (2:2:0) F.S.Su. Staff
- 699 (699). *Thesis for Master's Degree*. (1-4:Arr.:Arr.) Arr. Staff

Greek

Graduate Courses

- 631, 632 (664, 665, 666). *Selected Greek Masterpieces*. (3:3:0) F.S. Nibley
- 667, 668 (667, 668, 669). *The Greek New Testament*. (3:3:0) F.S. Nibley
- 677, 678 (677, 678, 679). *Greek Prose Writers*. (3:3:0) F.S. Nibley
Plato: *Apology*, *Crito*, *Timaeus*. Attic orators: *Lysias*, *Demonthenes*, *Isocrates*. Greek historians: *Arrian's Alexander*, *Asiatic Legations*.
- 690, 691 (671, 672, 673). *Individual Study in Greek*. (2-3:Arr.:Arr.) F.S.Su. Nibley
- 699 (699). *Thesis for Master's Degree*. (1-4:Arr.:Arr.) F.S.Su. Nibley

Latin

Graduate Courses

- 661, 662 (651, 652). *Readings in Vulgar Latin*. (2:2:0) F.S. Clark
- 667, 668 (667, 668, 669). *Cicero, Virgil; Latin Style and Composition*. (3:3:0) F.S. Clark
- 677, 678 (677, 678, 679). *Horace; the Latin Poets; the Latin Dramatists*. (3:3:0) F.S. Clark
- 681, 682 (681, 682, 683). *The Latin Fathers*. (3:3:0) F.S. Prerequisite: consent of instructor. Nibley
- 690, 691 (New). *Directed Readings*. (1-2:Arr.:Arr.) F.S.Su. Clark
Individual study on a graduate level.
- 692, 693 (New). *Seminar in Philology*. (2:2:0) F.S. Clark
- 694-698 (New). *Seminar in Literature*. (2:2:0) F.S. Clark
- 699 (699). *Thesis for Master's Degree*. (1-4:Arr.:Arr.) F.S.Su. Staff

Portuguese

Graduate Courses

- 620, 621 (601, 602, 603). *Portuguese Composition and Conversation*. (3:3:0) F.S. de Jong
- 641 (631, 632). *Introduction to Portuguese Literature*. (3:3:0) F.S. (G-HA) de Jong
- 642 (633). *Contemporary Portuguese Literature*. (3:3:0) S. de Jong
- 650 (655, 656, 657). *Introduction to Brazilian Literature*. (3:3:0) F.S. de Jong
- 651 (657). *Contemporary Brazilian Literature*. (3:3:0) S. de Jong
- 690 (696). *Directed Readings*. (1-2:0:Arr.) F.S.Su. Staff
Individual study on the graduate level.

- 692 (694). Seminar in Philology. (2:2:0) F.S. de Jong
 694 (696). Seminar in Literature. (1-2:1-2:0) F.S. Staff
 699 (699). Thesis for Master's Degree. (1-4:1-4:0) F.S. Staff

Spanish

Advanced Undergraduate or Graduate Course

- 511 (511). Materials and Techniques in Teaching Spanish. (2:2:0) F.Su. Pre-requisite: Spanish 322 or consent of instructor. Taylor, Valentine, Wilkins

Graduate Courses

- 620 (601). Spanish Composition and Conversation. (2:2:0) F. Staff
 622 (651). History of the Spanish Language. (2:2:0) S. Gibson
 652 (681). Spanish American Short Story. (2:2:0) S. Valentine, Wilkins
 653 (667). Drama in Spanish America. (2:2:0) S. Valentine, Wilkins
 654, 655 (672, 673). Spanish American Novel. (3:3:0) F.S. Valentine, Wilkins
 656 (655). The Modernista Movement. (2:2:0) S. Valentine, Wilkins
 657 (633). Hispanic American Essay. (2:2:0) F. Valentine, Wilkins
 660 (621). Spanish Medieval Literature. (2:2:0) S. Taylor
 670, 671 (665, 675). Golden Age Literature. (3:3:0) F.S. Gibson, Taylor
 680, 681 (622, 671). 19th Century Spanish Literature. (3:3:0) F.S. Gibson, Taylor
 685, 686 (623, 661). 20th Century Literature. (2:2:0) F.S. Taylor
 690, 691 (New). Directed Readings. (2:0:Arr.) F.S. Staff
 Individual study on a graduate level.
 692 (694). Seminar in Philology. (2:2:0) F.S.Su. Staff
 694-698 (694). Seminar in Literature. (2:2:0) F.S.Su. Staff
 699 (699). Thesis for Master's Degree. (1-4:Arr.:Arr.) F.S.Su. Staff

Library Science

Assistant Professors: Knight (chairman, 185 Library), Rich.

Instructors: Berry, Flake, Jenson, Nash, Storrs, Thorne.

The library science program of graduate classes is organized to provide opportunity for those students who already have the necessary undergraduate work in library science, but who wish to become more proficient in their work. It will fill the needs of those who wish to renew certificates and enable them to achieve the standards set by the accreditation agencies.

No provision is made for awarding a master's degree in library science under the present program, but a minor may be taken in this field.

Advanced Undergraduate or Graduate Courses

- 569 (569). Reading Guidance for Young People. (2:2:0) F.Su. Staff
 A critical study of the reading interests and needs of young people. Problems of the reluctant and the avid reader. Extensive examination and reading of books.
 571 (571). Bibliography of the Sciences. (2:2:0) Su. Staff
 572 (572). Bibliography of the Humanities. (2:2:0) S. Knight
 573 (573). Bibliography of the Social Sciences. (2:2:0) S. Knight
 585 (590). History of Books and Libraries. (2:2:0) F.Su. Flake

Graduate Courses

- 650 (650). Current Problems in the Technical Services. (2:2:0) Su. Rich
 695, 696 (655). Readings and Research in Library Science. (1-2:Arr.:Arr.) F.S.Su. Staff

These courses also count in Library Science:

- Instruction 605 (605). Development of Instructional Materials. (2:2:1)
 Speech 527 (527). Storytelling. (2:2:0)

Mathematics

Associate Professors: Fletcher (chairman, 289 ESC), Robinson.

Assistant Professor: Fearnley.

Requirements

Every graduate student must complete at least two-thirds of the 18 upper division hours of mathematics required for a bachelor's degree before he can be considered as a candidate for a master's degree in mathematics. At least two semester courses must be taken in graduate mathematics.

Master's Degree

There are three purposes for the master's degree in mathematics:

- (1) Preparation for teaching in the high school and the junior college.
- (2) Preparation for work in industry or for the government.
- (3) Preparation for a Ph.D. in mathematics.

All students should complete advanced calculus. Students going into industry should have numerical analysis. Students planning to obtain a Ph.D. should have topology and linear or abstract algebra. Students planning to teach or work in related fields to mathematics would profit by taking statistics.

Prospective graduate majors should obtain departmental approval on their program before registration.

Advanced Undergraduate or Graduate Courses

- 521, 522 (521, 522, 523). **Statistics.** (3:3:0 ea.) F. Prerequisites of Math 522: Math 214, 315, or 521. Staff
- Basic probability, distribution functions, estimators, tests of significance.
- 541, 542 (541, 542, 543). **Advanced Calculus.** (3:3:0 ea.) F.S. Prerequisite: Math 214. Staff
- 551, 552 (551, 552, 553). **Topology.** (3:3:0 ea.) F.S. Prerequisite: Math 214. Fearnley

Graduate Courses

- 617, 618 (617, 618, 619). **Mathematical Physics.** (3:3:0 ea.) F.S. Prerequisite: Math 316; recommended prerequisite: Math 542. Fletcher
- 631, 632 (631, 632, 633). **Complex Analysis.** (3:3:0 ea.) Not given this year. Prerequisite: Math 316; recommended prerequisite: Math 542. Staff
- 641, 642 (641, 642, 643). **Functions of a Real Variable.** (3:3:0 ea.) F.S. Prerequisite: Math 214; recommended prerequisite: Math 542. Staff
- 647, 648 (647, 648, 649). **Partial Differential Equations.** (3:3:0 ea.) F.S. Not given this year. Prerequisite: Math 214; recommended prerequisite: Math 542. Fletcher
- 671, 672 (671, 672, 673). **Modern Algebra.** (3:3:0 ea.) F.S. Not given this year. Prerequisite: Math 371. Robinson
- 681, 682 (681, 682, 683). **Linear Algebra.** (3:3:0 ea.) F.S. Prerequisite: Math 372. Robinson
- 695 (695). **Readings in Mathematics.** (1-2:1-2:0) F.S. Staff
- 699 (699). **Thesis for Master's Degree.** (1-4:Arr.:Arr.) F.S. Staff

Mechanical Engineering Science

Professor: Baxter.

Associate Professor: Simonsen (chairman, 274 ELB).

Assistant Professors: Beebe, Cannon, Wille.

The areas of graduate study in mechanical engineering are: thermodynamics, heat transfer, gas dynamics, and machine design.

Requirements

A student working toward a graduate degree in mechanical engineering science should have completed a bachelor's degree or its equivalent in mechanical engineering. Students without adequate background will be required to make up the deficiency. A course in differential equations will be the minimum mathematics background acceptable.

The general requirements of the Graduate School apply to the master's degree in mechanical engineering science. In addition to these requirements, the Mechanical Engineering Science Department has the requirement that the minor of 10 hours must consist of not less than 6 hours of mathematics. The remainder of the student's program will be determined in consultation with his advisory committee. The student should normally choose a major professor, and with him determine an advisory committee during his first semester of residency at the University.

Advanced Undergraduate or Graduate Courses

- 521 (520). Advanced Thermodynamics*.** (3:3:0) Arr. Prerequisites: Mechanical Engineering 321; Mathematics 317. Staff

Extended treatment of the fundamentals of thermodynamics including transient conditions, equilibrium, combustion.

- 531 (530). Principles of Automatic Control*.** (3:3:0) Arr. Prerequisites: Mechanical Engineering 410; Electrical Engineering 302; Mathematics 316. Staff

Transfer functions applied to mechanical, hydraulic, pneumatic, and electrical components, and their combination. Block diagrams, Nyquist and Routh Criteria, Bode's and Root Locus Plots, Integral and error rate compensation. Non-linear systems.

- 532 (531). Special Topics in Machine Design*.** (2:2:0) Arr. Staff

Selected topics in the behavior of engineering materials and advanced mechanics of materials as applied to the design of machine members.

- 533 (New). Stress Analysis in Machine Components.** (3:3:0) Arr. Prerequisites: Civil Engineering 303; Mathematics 316. Staff

Statically indeterminate structures, columns, tension and shear fields, shell analysis, curved beams and rings, buckling of columns and compression panels, torsion analysis of irregular shapes, and combined loads and stresses. Particular emphasis is given to aircraft and missile flight vehicles and ground handling equipment.

- 535 (535). Mechanical Vibrations.** (3:3:0) F. Prerequisites: Mathematics 316; Civil Engineering 302. Staff

Fundamentals of simple vibrating systems with applications.

- 541 (541). Advanced Heat Transmission*.** (3:3:0) Arr. Prerequisite: Mechanical Engineering 441. Staff

Extension of Mechanical Engineering 441 to include numerical and approximate methods of solution, transient problems, and solution of problems by analogy methods.

A study of the thermodynamic cycles, systems, and processes involved in cooling.

- 581 (581). Internal Combustion Engines*.** (3:2:3) Arr. Prerequisite: Mechanical Engineering 422. Staff

Basic principles; theoretical and actual cycles; performance characteristics with experimental laboratory analysis.

- 583 (583). Principles of Turbomachinery*.** (2:2:0) Arr. Prerequisites: Mechanical Engineering 321, 411. Staff

Analysis and design of all types of turbomachinery.

- 585 (585). Jet Propulsion Power Plants*.** (3:3:0) Arr. Prerequisites: Mechanical Engineering 412, 422. Staff

Analysis of power plants, including performance of prime movers, economics, and matching of components.

Analysis of power plants, including performance of prime movers, economics, and heat balance components.

- 590 (590). **Mechanical Engineering Problems.** (1:0:3) F. Prerequisite: fifth year standing. Staff
 Selected problems from the field which will enable the student to integrate his fundamental knowledge in their solutions.
- 591, 592 (591, 592, 593). **Seminar.** (1:1:0) F. Prerequisite: fifth year standing. Staff
 Student and faculty presentation of topics of special and current interest.
- 595, 596 (596, 597, 598). **Special Problems*.** (Arr.) Arr. Prerequisite: consent of department chairman. Staff
- 597 (599). **Undergraduate Research*.** (Arr.) Arr. Prerequisite: consent of department chairman. Staff

Graduate Courses

- 611 (610). **Fluid Dynamics*.** (3:3:0) Arr. Prerequisites: Mechanical Engineering 412; Mathematics 317. Staff
 Steady and unsteady flow of compressible and incompressible fluids; principles of operation of fluid dynamical machinery.
- 612 (New). **Gas Dynamics.** (3:Arr.:Arr.) Arr. Staff
- 621, 622 (New). **Thermodynamics Theory I, II.** (3:Arr.:Arr. ea.) Arr. Staff
- 635 (635). **Advanced Vibration Analysis*.** (3:3:0) Arr. Prerequisite: Mechanical Engineering 535. Staff
 Vibration characteristics of systems with several degrees of freedom; elastic bodies; systems with transient vibrations, and simple non-linear systems.
- 636 (New). **Advanced Vibrations II.** (3:Arr.:Arr.) Arr. Staff
- 641, 642 (New). **Heat Transfer Theory I, II.** (3:Arr.:Arr. ea.) Arr. Staff
- 661, 662 (New). **Elasticity in Engineering.** (3:Arr.:Arr. ea.) Arr. Staff
- 697 (New). **Master's Candidate Research.** (Arr.) Arr. Staff
- 699 (New). **Thesis for Master's Degree.** (1-4:Arr.:Arr.) Arr. Staff

*Electives offered upon approval of department chairman. Frequency based upon sufficient demand.

Music

Professors: de Jong, Halliday.

Associate Professors: Gates (chairman, 260 C), Earl, Martino, Sardoni.

Assistant Professors: Cannon, Cundick, Gulbrandsen, Keeler, H. Laycock, R. Laycock, Nordgren, Wakefield, Weight, R. Woodward.

Instructors: Ballou, Bos, Bradshaw, Curtis, Edlefsen, Fuerstner, Groesbeck, Weinzing, Wilkes.

Fields

Music Education, Music Theory, Musicology, Applied Music (minor)

Requirements

Departmental recommendation for full graduate standing is granted to students who possess the baccalaureate degree with a major in music, have at least a "B" average in the last two years of college work, and pass the department qualifying examination. This examination presupposes the equivalent of Music 292 and Music 485. Provisional standing may be recommended for a student who has not completed the above requirements. Deficiencies in training must be made up, however, before full standing will be recommended. Students who expect to receive a master's degree in music education (elementary) are not required to take the qualifying examination, but must have the baccalaureate degree in elementary education with a minor in music or its equivalent and at least one year of elementary teaching experience.

Candidates for the master's degree in music education (elementary or secondary) must have completed requirements for the appropriate General Teacher's Certificate.

All graduate students must take Music 635, **Musical Research Techniques**, preferably during the first quarter of graduate work.

A student who writes a master's thesis or a doctoral dissertation must take English 99, **Problems of Thesis Writing**, unless excused by the chairman of his advisory committee.

Master's Degree

A minimum of 30 semester hours of credit is required for the master's degree.

Major music area (including thesis or composition) (music education, music theory, or musicology)	15 hours
Minor music area (applied music, music education, music theory, or musicology)	10 hours
Electives	5 hours
Total	30 hours

Doctor's Degree

Three years of full-time study beyond the bachelor's degree are required for the Doctor of Philosophy degree in music. Of these required three years of full-time study, normally at least two years will be taken at Brigham Young University. Upon the recommendation of the advisory committee, a candidate for the Ph.D. degree may take one of his last two years at another institution.

The Ph.D. candidate must demonstrate proficiency in reading German and at least one other language, preferably French.

The doctoral program in music is flexible, designed to meet each candidate's needs; i.e., it offers optional emphasis in the areas of music history and literature, music theory, and music education. The Ph.D. curriculum in music includes (1) a core program of 34 semester hours of advanced study in music which provides the framework and basic techniques for systematic learning and research in any area of music; (2) a major area of emphasis (musicology, music education, or music theory) of 36 semester hours which includes the writing of an acceptable dissertation based on original research (competence in research and writing must be demonstrated before work is started on the dissertation); and (3) a minor of 10-12 semester hours outside the field of music.

Core Courses	Semester Hours
Music 613, Basic Concepts in Music Education	2
Music 635, Musical Research Techniques	3
Music 637, History and Literature before 1750	5
Music 638, History and Literature after 1750	5
Music 652, History of Notation and Paleography	3
Music 754, History of Music Theory	3
Music 785, History of Music Theory	3
Music 791, Acoustics of Music	3
Art 501, Aesthetics	2
Philosophy of Art	2
Psychology 606, Psychology of Music	3
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	34

Major Area

Music Education:	
Music 693, Pro-Seminar in Music	2
Music 699, Master's Thesis	2
Music 794, Seminar in Music	6
Music 799, Dissertation	12
Optional Courses: to be prescribed by advisory committee	14
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	36

Music Theory:

Music 693, Pro-Seminar in Music	2
Music 699, Master's Thesis	2
Music 794, Seminar in Music	6
Music 799, Dissertation	12
Optional Courses: to be prescribed by advisory committee	14
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	36

Musicology:

Music 693, Pro-Seminar in Music	2
Music 699, Master's Thesis	2
Music 794, Seminar in Music	6
Music 799, Dissertation	12
Optional Courses: to be prescribed by advisory committee	14
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	36

Minor Outside the Field of Music 10-12

Total Hours 80-82

Advanced Undergraduate or Graduate Courses

- 501 (489). Music in America.** (3:3:0) S.Su. Prerequisite: Music 485 or consent of instructor. Wilkes
- 537x (537x). Music for Elementary School Teachers (Advanced).** (2:2:0) Extension course only. Prerequisites: Music 102, 237. Groesbeck
Experiences in teaching and various music activities in the elementary school.
- 563, 564 (563, 564). Piano Repertoire.** (1:0:2 ea.) F.S.Su. Prerequisite: advanced standing as a pianist. Fuerstner
- 565 (565). Piano Pedagogy.** (2:2:0) S. Prerequisite: advanced standing as a pianist. Keeler
Methods, materials, and problems in teaching piano.
- 566, 567 (566, 567). Vocal Repertoire.** (1:0:2 ea.) F.S.Su. Prerequisite: advanced ability as a singer. Weinzinger
- 568 (568). Vocal Pedagogy.** (2:2:0) S.Su. Prerequisite: advanced standing as a singer. Weight
Methods, materials, and problems in teaching voice.
- 571, 572 (670, 671, 672). Counterpoint.** (3:3:0 ea.) F.S.Su. Prerequisite: Music 292. Cundick
- 581, 582 (680, 681, 682). Orchestration.** (3:3:0 ea.) F.S.Su. Prerequisite: Music 292. Gates
- 587, 588 (587, 588, 589). Composition.** (3:3:0 ea.) F.S.Su. Prerequisite: Music 292. Fuerstner

MUSIC EDUCATION**Upper Division Courses**

- 377 (377). Secondary Teaching Procedures.** (3:3:1) F. Prerequisite: Instruction 301. Martino
See Instruction 377.
- 479 (479). Secondary Student Teaching.** (8:full day, last half of semester) S. Prerequisite: Music 377. Staff
See Instruction 479.

Graduate Courses

- 601 (601). Music in the Primary Grades.** (2:2:0) F. Prerequisites: Music 102, 237, and the equivalent of an elementary education teaching minor in music. Groesbeck
- 602 (602). Music in the Intermediate Grades.** (2:2:0) S. Prerequisites: Music

- 102, 237, and the equivalent of an elementary education teaching minor in music. Groesbeck
- 603 (New). **Music in the Junior High School.** (2:2:0) S.Su. Prerequisite: Music 602 or equivalent. Terry
Advanced course for graduate students in music education. The principles, practices, and programs in the junior high school.
- 605 (605). **Influence of Music on Behavior.** (3:3:0) F. Prerequisite: general psychology or equivalent. Martino
Required of all graduate students majoring in music education.
- 612 (612). **Music Education in Society.** (3:3:0) S. Prerequisites: Music 484, 485 or equivalent. Martino
Required of all graduate students majoring in music education.
- 613 (613). **Basic Concepts in Music Education.** (2:2:0) F. Martino
The principles, practices, and programs of music education. A course designed for and required of all graduate music students.
- 615 (615). **Vocal Methods, Materials, and Resources.** (2:2:0) F.Su. Prerequisite: Music 479 or equivalent. R. Woodward
- 616 (616). **Instrumental Methods, Materials, and Resources.** (2:2:0) S.Su. Prerequisite: Music 479 or equivalent. H. Laycock
- 620 (620). **Advanced Conducting.** (2:2:2) F. Prerequisites: Music 374, 375 or equivalent. R. Laycock, Sardoni
- 625 (625). **Summer Music Clinic.** (2:4:4: for two weeks during clinic) Su. Staff
May be counted as either music education or applied music.
- 635 (635). **Musical Research Techniques.** (3:3:0) F.Su. Prerequisite: graduate standing or consent of instructor. Staff
Required of all candidates for graduate music degrees.
- 637 (637, 638). **History and Literature of Music before 1750.** (5:5:0) F.Su. Prerequisite: Music 485 or equivalent. Cannon, Wilkes
- 638 (638, 639). **History and Literature of Music after 1750.** (5:5:0) S.Su. Prerequisite: Music 485 or equivalent. Cannon, Wilkes
- 640 (640, 641, 642). **Symphonic Music.** (3:3:0) F.Su. Offered 1961-62 and alternate years. Prerequisite: Music 485 or equivalent. Wilkes
- 643 (643, 644, 645). **Chamber Music.** (3:3:0) F.Su. Offered 1960-61 and alternate years. Prerequisite: Music 485 or equivalent. Wakefield
- 646 (646, 647, 648). **Operatic Music.** (3:3:0) S.Su. Offered 1960-61 and alternate years. Prerequisite: Music 485 or equivalent. Staff
- 649 (649, 650, 651). **Choral Music.** (3:3:0) S.Su. Offered 1961-62 and alternate years. Prerequisite: Music 485 or equivalent. Staff
- 652 (652). **History of Notation and Paleography.** (3:3:0) F.Su. Prerequisite: Music 485 or equivalent. Cannon
- 656 (656). **Hymnology.** (2:2:0) S. Prerequisite: Music 485 or equivalent. Weight
- 660p (660p). **Private Instruction.** (2:1:0) F.S.Su. Staff
Fifteen lessons per semester. Special fee.
- 663 (663). **Solo Recital.** (2:0:6-10) F.S.Su. Staff
Required of all graduate students minoring in applied music.
- 673 (676, 677). **Form and Analysis.** (3:3:0) F.Su. Prerequisites: Music 491, 572. Bradshaw, Gates
- 675 (675). **Materials of Modern Music.** (3:3:0) S.Su. Prerequisite: Music 673. Bradshaw, Gates
- 686 (686). **Pedagogy of Music Theory.** (3:3:0) F.Su. Prerequisite: Music 292. Nordgren
- 687, 688 (687, 688, 689). **Composition.** (3:3:0 ea.) F.S.Su. Prerequisite: Music 588 or equivalent. Fuerstner, Gates
- 693 (693, 694). **Pro-Seminar in Music.** (2:2:0) S.Su. Prerequisites: Music 485, 635 or equivalent and approval of advisory committee. Staff

- 694 (695). **Independent Readings.** (2:0:6) F.S.Su. Prerequisite: Music 693 or equivalent. Staff
- 695 (695). **Independent Readings.** (2:0:6) F.S.Su. Prerequisite: Music 693 or equivalent. Staff
- 698 (698). **Composition for Master's Degree.** (2-4:Arr.:Arr.) F.S.Su. Prerequisite: approval of graduate advisory committee, based on evidence of ability in composition. Staff
To be submitted in lieu of a thesis by candidates for the master's degree majoring in composition.
- 699 (699). **Thesis for Master's Degree.** (2-4:Arr.:Arr.) F.S.Su. Prerequisite: approval of graduate advisory committee. Staff
Candidates for the master's degree are required to show competence in writing and research before work is started on the thesis.
- 753 (New). **Advanced Problems in Notation.** (3:3:0) F. Prerequisites: Music 485, 652. Cannon
- 754 (653). **History of Musical Instruments.** (3:3:0) F. Prerequisite: Music 485 or equivalent. Wakefield
- 785 (685). **Historical Aspects of Music Theory.** (3:3:0) S.Su. Prerequisite: Music 292. Nordgren
- 791 (New). **Acoustics of Music.** (3:3:0) S. Not given this year. Prerequisite: Music 292. Staff
- 794 (New). **Seminar in Music.** (3:3:0) F.S.Su. Prerequisite: approval of graduate advisory committee. Staff
- 799 (799). **Dissertation for the Doctor of Philosophy Degree.** (1-4:Arr.:Arr.) F.S.Su. Prerequisite: approval of graduate advisory committee. Staff
Candidates for the Doctor of Philosophy degree are required to show competence in writing and research before work is started on the dissertation.

Physical Education

Professors: Hart (chairman—men, 222 SFH), Holbrook (chairman—women, 320 WG), Hartvigsen, Kimball.

Associate Professor: Watts.

Assistant Professors: Barney, Soffe.

Instructors: Bangarter, Hirst, Jacobson.

Requirements

An undergraduate major or equivalent in the field and acceptance by the department chairman is necessary for admission.

The basic requirements for the master's degree in physical education are the same as the general Graduate School requirements. In addition, the college will administer an oral examination to each student early in the first semester. The purpose of the examination is to give guidance in the selection of courses and studies leading to the master's degree. Recommended courses will be set up after consultation with the college graduate chairman and the major chairman.

Advanced Undergraduate or Graduate Courses

- 511 (511). **Administration of High School Athletics.** (2:2:0) F. E. R. Kimball
Education outcomes of high school athletics, their relationship to the intramural program, the physical education program, the school, and the community as a whole.
- 514 (314, 604). **Organization and Administration of Intramural Sports.** (2:2:0) F.S. Home Study also. Soffe
History, present status, and objectives of the intramural movement procedures concerning organization, administration, and supervision of the intramural program.

- 542 (542). **Physical Inspection.** (1:1:0) S. Staff
 Ways of recognizing abnormalities of body function by inspection and test procedures.
- 543 (543). **Problems in Athletic Conditioning and Injuries.** (2:1:2) F.Su. Pre-
 requisites: Physical Education 341, 446. Barney
- 570 (570). **Teaching Progression in Individual Sports.** (2:4:0) S. Prerequisite: skills classes or equivalent. Jacobson, Soffe
 Materials, methods, and teaching progression in individual sports such as archery, badminton, bowling, golf, and tennis.
- 571 (571). **Teaching Progression in Team Sports—Men.** (2:1:2) F. Soffe
 Materials, methods, and teaching progression in team sports such as basketball, football, soccer, softball, speedball, volleyball, and wrestling.
- 572 (572). **Teaching Progression in Team Sports.** (2:2:2) F.S. Hirst
 Materials, methods, and teaching progression in team sports such as basketball, field hockey, soccer, softball, speedball, and volleyball.
- 574 (674). **Teaching Techniques in Gymnastics.** (2:1:2) F. Bangerter
- 575 (675). **Materials and Methods for Secondary Teachers—Women.** (2:1:2) F. Hirst
- 588 (584, 586, 587). **Workshop in Modern Dance.** (2:2:6) Su. Prerequisite: competency in modern dance. Chatwin, Holbrook, Oswald
 Advanced techniques, composition, improvisation, and accompaniment.

Graduate Courses

- 600 (601, 676). **Curriculum Construction and Supervision in Physical Education.** (3:3:0) S. Hart, Soffe
 Curriculum construction for elementary, secondary, and college physical education with techniques of supervision in improving teacher-pupil learning situations.
- 603 (603). **Planning Facilities.** (2:2:0) S. E. R. Kimball
 Basic planning for facilities for school and community physical education and recreation programs.
- 621 (621). **History and Philosophy.** (3:3:0) F. Holbrook
 Beliefs and practices from early to modern times as related to physical education. Significance and implications of these in view of their effect upon modern educational thinking and cultural uses.
- 641 (641). **Principles and Practices of Physical Reconditioning.** (2:2:0) F. Pre-
 requisite: Zoology 264. Barney
- 660 (660). **Measurement and Evaluation of Physical and Health Education.** (3:3:0) S. Prerequisite: Physical Education 464 or equivalent. Hart
- 673 (673). **Physical Education in the Elementary School.** (3:3:0) Su. Holbrook
 For the teacher, the principal, and the supervisor. Emphasis upon objectives, interrelationships with the curriculum, and the content material used in accomplishing education results.
- 691 (602, 605). **Seminar in Administration.** (3:3:0) S. Hart, Hartvigsen
- 692 (692). **Research Methods in Physical Education.** (3:3:0) F. Hart
- 694 (694). **Seminar in Readings.** (2:2:0) F.S. Staff
- 696 (696). **Seminar in Problems.** (1:1:0) S. Staff
- 698 (698). **Field Project, Master's Degree.** (1-4:0:Arr.) F.S.Su. Staff
- 699 (699). **Thesis, Master's Degree.** (1-4:0:Arr.) F.S.Su. Staff

Physics

Professors: Eastmond (chairman, 287 ESC), Fletcher, Gardner, W. Hales, A. Hill, Marshall.

Associate Professors: R. Hales, McNamara.

Assistant Professors: Barnett, Decker, Dixon, M. Hill, Hoyt, Miller, Nelson.

The Physics Department offers the degrees of Master of Science (M.S.) or Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.). The master's degree is often taken by those who intend to continue on for the Ph.D., but it also serves as a degree for many who intend to go into industrial or governmental research or into teaching. The Ph.D. is awarded for a high degree of scholarly achievement in the subject matter of physics and in research. It is not granted simply upon completion of certain routine requirements. General requirements for these degrees are outlined by the Graduate School. Following are special requirements relating to the Department of Physics. The student who expects to continue into a Ph.D. program would do well to start on it as soon as he enters the Graduate School.

Master's Degree

The basic requirements for the master's degree in physics are the same as the general Graduate School requirements. However, the minor requirements for the master's degree may be taken either outside the department or within the department where the student may satisfy a minor in mathematical physics by taking Math 617, 618, and Physics 621.

A student seeking only a master's degree with the intent of going into research or development work would find the courses listed in item B-2 under the Ph.D. requirements to be profitable. However, he may find it to his advantage to substitute some more specialized courses or some undergraduate courses where this can be done in conformity with the regulations of the Graduate School.

A student seeking the master's degree with the intent of going into secondary teaching should consider the following program:

Education (the 24 hours required for a teaching certificate)

Physics 551, 522

Physics 511

One additional year's course in physics. Recommended: Physics 527, 528; Physics 561, 562; Physics 671, 672; Physics 691, 692; or if the student has not taken these in the undergraduate program, Physics 341, 342; or 431, 471.

The courses in education would fulfill the minor requirements for this degree. Persons who have already fulfilled these education requirements as undergraduates should select some other minor field such as mathematics, chemistry, or mathematical physics (see discussion above). There are many possibilities for research for master's theses which may be done with equipment on loan from the University away from the campus: e.g., cosmic ray studies, meteorological studies, and astronomical studies. This should make it possible for a student to fulfill his education and physics requirements in one school year with the addition of one or two summers of study.

Doctor of Philosophy Degree

It is expected that the student will meet the general requirements of the Graduate School for advanced degrees. The following special requirements relate to a degree in physics.

A. Admission to Degree-Seeking Basis

Study leading to an advanced degree in physics is contingent upon admission to the Graduate School. It is further expected that the student shall have satisfactorily completed the following courses or their equivalent: Physics 211, 213, 315, 316, 321, 322, 341, 342, 437, 471, and Math 232, 233, 315, 316, 541, 542. Upon approval by the student's advisory committee, some other advanced mathe-

matics series may be substituted for 541 and 542. A student may remove any deficiencies by special examination or by registering for any of these courses at the outset of his graduate studies and earning "A" or "B" grades in them. Credit thus earned may not be applied towards meeting the requirements for the Ph.D. degree.

A written proficiency examination covering the general field of the undergraduate physics included in the above named courses must be taken sometime during the first week of the semester in which the student enters the Graduate School in order that it may be determined whether or not there are deficiencies to be removed. If the student is already planning to remove deficiencies by course work or special examination, he may omit the parts of the test relating to these fields and present passing grades in the courses or in the special examination in their place.

B. Formal Course Work

1. A minimum of 52 hours in approved course work.
2. The following courses or their equivalents with grades of "A" or "B":
 - a. Mathematical Physics (Math 617, 618).
 - b. Elements of Quantum Theory (Physics 551), and The Atomic Nucleus (Physics 552).
 - c. Dynamics (Physics 621).
 - d. Mathematical Theory of Electricity and Magnetism (Physics 641, 642).
3. At least 9 hours in each of any two of the following general fields with grades of "A" or "B". One of these should be in the field in which the student plans to do his thesis. The other constitutes his minor.
 - a. **Quantum Mechanics**
Courses which will satisfy this requirement are: Physics 527, 528, 751, Chemistry 765, 766.
 - b. **Astrophysics**
Courses which will satisfy this requirement are: Physics 527, 528, 622, 627, 628, 671.
 - c. **Thermodynamics and Statistical Mechanics.**
Courses which will satisfy this requirement are: Physics 631, 632, 741, Chemistry 661, 662, 761, 762.
 - d. **Nuclear Physics**
Courses which will satisfy this requirement are: Physics 655, 656, 755.
 - e. **Acoustics**
Courses which will satisfy this requirement are: Physics 561, 562, 563, 564, Electrical Engineering 581, 582, 584, 585, 587.
 - f. **Atomic Physics and Spectroscopy**
Courses which will satisfy this requirement are: Physics 527, 528, 671, 672, 771.
 - g. **Solid State Physics**
Courses which will satisfy this requirement are: Physics 632, 681, 682, 781.
4. Graduate Seminar for which one may receive 4 hours of credit.

C. Comprehensive Examinations

Before the student is admitted to candidacy for the Ph.D. degree, he must pass a series of written and oral comprehensive examinations covering the courses in B-2 and the two general fields selected under B-3.

D. Acceptance for Research

Before admission to candidacy, the student must be tentatively accepted as a research student by a member of the faculty of the Physics Department. The student may become acquainted with research opportunities available by attendance at seminars, lectures, discussions with faculty and other graduate students, etc.

E. Admission to Candidacy

The student is admitted to candidacy after (1) completing two years of

graduate study, (2) passing the language examinations, (3) passing the comprehensive examinations, and (4) obtaining approval of a subject for the dissertation.

F. Dissertation

The student must present a written dissertation embodying the results of original research judged by his committee to be suitable in whole or in part for publication in a national journal.

G. Defense of Dissertation

The student must give an oral presentation and defense of the dissertation before his committee and others designated by his committee.

H. Research Fields Presently Available for Original Research Are:

Acoustics	Magnetic Resonance
Astrophysics	Micro-wave Spectroscopy
Atomic Physics	Nuclear Physics
Gaseous Electronics	Solid State Physics
High Pressure, High Temperature Phenomena	

Advanced Undergraduate or Graduate Courses

- 511 (511, 512, 513). **Introduction to Theoretical Physics.** (3:3:0) Su. Prerequisites: Math 315, 316. Decker
Introduction to the basic principles of physics with emphasis on their mathematical formulation. Applications principally in mechanics and electrodynamics.
- 527, 528 (527, 528, 529). **Introduction to Astrophysics.** (3:3:0 ea.) F.S. Offered in 1961-62 and alternate years. McNamara
The physics of stellar atmospheres.
- 551 (551, 552). **Elements of Quantum Theory.** (3:3:0) F. Prerequisites: Physics 315; Math 316. Staff
Basic course in modern theory of radiation and particle physics including elementary treatments of theory of relativity; quantum mechanics with spectroscopic applications; quantum statistics; solids.
- 552 (552, 553). **The Atomic Nucleus.** (3:3:0) S. Prerequisite: Physics 551. Staff
Basic course in nuclear physics including description of nuclear properties; scattering theory; nuclear reactions; elementary theory of the nucleus.
- 561, 562 (561, 562, 563). **Fundamentals of Acoustics.** (3:3:0 ea.) F.S. Offered in 1960-61 and alternate years. Fletcher
Vibrating systems, transmission phenomena, theory of acoustical radiators, and applications of acoustics.
- 563, 564 (564, 565, 566). **Acoustical Measurements.** (2:2:0) F.S. Offered in 1960-61 and alternate years. Prerequisite: completion of or concurrent registration in Physics 561, 562. Geersten
Selected experiments in acoustics.
- 591 (394, 696, 697, 698). **Techniques in Experimental Physics.** (3:2:3) S. Staff
Modern methods in experimental physics with experience in basic shop and laboratory techniques applicable in research.

Graduate Courses

- 621 (621, 622). **Dynamics.** (3:3:0) F. Prerequisite: Physics 322. Staff
- 622 (623). **Theory of Relativity.** (3:3:0) S. Prerequisite: Physics 621. Staff
- 627, 628 (627, 628, 629). **Advanced Topics in Astrophysics.** (3:3:0 ea.) F.S. Offered in 1960-61 and alternate years. Prerequisite: consent of instructor. McNamara
- 631 (631, 632). **Advanced Thermodynamics and Kinetic Theory.** (3:3:0) F. Offered in 1961-62 and alternate years. Staff

- 632 (633). **Statistical Mechanics.** (3:3:0) S. Offered in 1961-62 and alternate years. Staff
- 641, 642 (641, 642, 643). **Mathematical Theory of Electricity and Magnetism.** (3:3:0 ea.) F.S. Prerequisites: Physics 342. Nelson
- 651, 652 (657, 658, 659). **Quantum Mechanics.** (3:3:0 ea.) F.S. Offered in 1960-61 and alternate years. Prerequisites: Physics 551, 621; Math 618. Gardner
- 655, 656 (651, 652, 653). **Nuclear Physics.** (3:3:0 ea.) F.S. Offered in 1961-62 and alternate years. Prerequisite: Physics 552. Staff
- 671 (671, 672). **Atomic Spectroscopy.** (3:2:3) F. Offered in 1961-62 and alternate years. Prerequisite: Physics 551 or consent of instructor. Eastmond
- 672 (673, 771). **Molecular Spectroscopy.** (3:2:3) S. Offered in 1961-62 and alternate years. Prerequisite: Physics 671. Eastmond
- 681, 682 (681, 682, 683). **Modern Theory of the Solid State.** (3:3:0 ea.) F.S. Offered 1960-61 and alternate years. Prerequisites: Physics 431, 551. Decker
- 691, 692 (691, 692, 693). **Seminar.** (1:1:0) F.S. Staff
- 697 (New). **Research for Master's Degree.** (Arr.) Arr. Staff
- 699 (699). **Thesis for Master's Degree.** (1-4:Arr.:Arr.) Arr. Staff
- 741 (741, 742, 743). **Advanced Topics in Electron Physics.** (2:2:0) F.S. Prerequisite: consent of instructor. R. Hales
- Course content varies from year to year. Examples of topics that might be treated are vacuum electronics, plasma physics, thermonuclear processes, etc.
- 751 (757, 758, 759). **Advanced Quantum Theory.** (3:3:0) F. Offered in 1961-62 and alternate years. Prerequisite: Physics 652. Staff
- 755 (New). **Advanced Topics in Nuclear Physics.** (3:3:0) F.S. Prerequisite: consent of instructor. Staff
- Course content varies from year to year. Examples of topics that might be treated are study of particles (mesons, hyperons), high energy interactions, cosmic rays, etc.
- 771 (772, 773). **Microwave Spectroscopy.** (3:3:0) F. Offered in 1960-61 and alternate years. Prerequisite: Physics 672. Staff
- 791, 792 (791, 792, 793). **Seminar.** (1:1:0) F.S. Staff
- 797 (798) **Research for Ph.D. Degree.** (Arr.) Arr. Staff
- 799 (799). **Dissertation for Ph.D. Degree.** (Arr.) Arr. Staff

Political Science

Professors: Grow (chairman, 358 McKay), Jensen (emeritus).

Associate Professors: Caldwell, Melville, Reeder.

Assistant Professors: Jones, Mabey, Riggs.

Requirements

For full graduate standing in this field, a student must have completed approximately the equivalent of an undergraduate major.

A minor may be undertaken with somewhat less background, after consultation with the department.

Advanced Undergraduate or Graduate Courses

- 532 (532). **Personnel Administration.** (2:2:0) F. Staff
- Treatment of processes, procedures, controls, and problems of personnel and fiscal administration in executive branches of federal, state, and local governments.

- 535 (335, 635). **Municipal Government and Administration.** (3:3:0) S. Grow
Growth, development, and organization of cities; relationship of cities to
other governments; problems and activities of modern cities.
- 557 (557). **Government and History of Canada.** (3:3:0) S. Offered in 1961-62
and alternate years. Staff
- 560 (560). **Government of Latin America.** (2:2:0) S. Offered 1960-61 and al-
ternate years. Staff
Growth and political development of countries in the Latin-American
area, with special reference to Argentina, Brazil, and Mexico.
- 565 (565). **International Organization.** (3:3:0) F. Staff
History and structure of international organizations, with particular em-
phasis on the United Nations organization and its specialized agencies.
- 571 (571). **Development of American Foreign Policy.** (3:3:0) S. Staff
Role of the United States in international affairs from colonial times to
the present.
- 575 (375, 376). **International Law.** (5:5:0) S. Reeder
Nature and function of international law; recognition, succession, juris-
diction, rights, and immunities of states; nationality and jurisdiction over
nationals.
- 590 (590). **Jurisprudence.** (3:3:0) S. Offered in 1960-61 and alternate years.
Caldwell
- 591 (391). **Anglo-American Legal Institutions.** (3:3:0) S. Caldwell
Origins and development of common law and equity, the writ system;
court systems, basic legal terms, the anatomy of a law suit.
Problem approach to ancient and modern legal philosophies, with special
attention given the nature of justice and the relation of law to morality.
- 593 (593). **Administrative Law of the U.S.** (3:3:0) F. Offered in 1961-62 and
alternate years. Reeder
Legal setting for administrative bodies and judicial control of adminis-
trative action. Cases in administrative law read and discussed.
- 595 (306, 595). **American Constitutional History.** (3:3:0) F. Prerequisite: Politi-
cal Science 110. Jensen
History and development of the Constitution; study of its fundamental
provisions, their interpretation and application in the functioning of the
American system of government.

Graduate Courses

- 601 (601). **Modern Political Philosophy.** (2:2:0) S. Offered in 1960-61 and
alternate years. Caldwell
- 605 (605). **Roots of American Democracy.** (2:2:0) F. Offered in 1961-62 and
alternate years. Caldwell
- 610 (610). **American Political Problems.** (2:2:0) F. Offered in 1961-62 and
alternate years. Grow
- 630 (630). **Comparative Public Administration.** (3:3:0) S. Offered in 1960-61
and alternate years. Grow
- 650 (650). **Democratic Governments.** (2:2:0) F. Offered in 1960-61 and alter-
nate years. Staff
- 651 (651). **Totalitarian Governments.** (2:2:0) S. Offered in 1961-62 and al-
ternate years. Mabey
- 665 (665). **International Organization in the 20th Century.** (2:2:0) S. Offered
in 1960-61 and alternate years. Staff
- 670 (670). **International Relations in the 20th Century.** (2:2:0) S. Offered in
1961-62 and alternate years. Staff
- 675 (675). **Modern International Law.** (2:2:0) S. Offered in 1960-61 and alter-
nate years. Reeder
- 690 (690). **Supreme Court of the United States.** (2:2:0) F. Offered in 1961-62
and alternate years. Caldwell

- 696 (696). Constitutional Law in the 20th Century. (2:2:0) F. Offered in 1961-62 and alternate years. Reeder
 698 (698). Directed Readings in Political Science. (1-2:0:1-2) F.S. Staff
 699 (699). Thesis for Master's Degree. (2-4:0:2-4) F.S. Staff

The following also count for Political Science credit:

- Geography 522 (565). Urban Geography. (2:2:0)
 Economics 575 (575). Government Finance. (3:3:0)
 Economics 576 (576). Government and Business. (3:3:0)

Psychology

Professor: Allen (chairman, 1230 SFLC).

Associate Professors: Howell, Robinson, Taylor.

Assistant Professors: Hardy, Moffitt.

The Department of Psychology offers the following graduate programs leading to advanced degrees: master's degree in general psychology; master's degree for school psychologists, given in collaboration with the Department of Educational Research and Services; Ph.D. in clinical psychology; and a Ph.D. in general psychology.

Prospective graduate students are expected to acquaint themselves with all general regulations for advanced degrees as outlined by the Graduate School. Admittance to graduate work in psychology requires completion of the core courses for the undergraduate major (general psychology, cognitive processes, motivation, elementary statistics, experimental psychology, abilities, and one seminar) or their equivalent. Before a student will be admitted to a degree-seeking status he must demonstrate his competence for graduate work by satisfactory performance on a battery of written examinations to be prescribed by the department.

Master's Degree

Requirements include: (1) completion of the required number of hours as stipulated by the general University requirements, including the specific courses required by the department for the school psychologist program, or those prescribed by the student's advisory committee in the general field; (2) a thesis which reports research done under the direction of a committee composed of representatives from the major and minor departments; (3) a successful oral defense of his thesis before his committee and other members of the graduate faculty.

Doctor of Philosophy Degree with a Major in Clinical Psychology

Requirements for the degree of Doctor of Philosophy include: (1) completion of the required courses listed below. (It is expected that the prerequisite courses will be taken without credit where this is necessary to make up deficiencies); (2) a minimum of twenty hours in a minor field in a subject related to and supporting general knowledge in psychology, plus sufficient other hours in psychology (including required courses) or related fields to equal at least 74 hours; (3) comprehensive examinations covering his major and minor fields. No student will be admitted to these comprehensive examinations until he has demonstrated a general breadth of basic knowledge during the first two years of graduate work. Completion of these examinations will be necessary before a person can be formally admitted to candidacy for a degree in clinical psychology. (The examination in the major area need not be taken at the same time as that in the minor area); (4) a dissertation embodying the results of original research of professional caliber, done under the supervision of the advisory committee; (5) completion of one year of internship in a hospital or institution approved by the department.

**Courses Required for a Doctor of Philosophy Degree with a Major
in Clinical Psychology**

- I. General Psychology (18 hours)
 - A. 560, Psychology of Learning. (3:3:0)
 - B. 585, Advanced Physiological Psychology. (3:3:0)
 - C. 610, Systematic Psychology I: History and Contemporary Thought. (4:4:0)
 - D. 611, Systematic Psychology II: Psychological Theory. (4:4:0)
 - E. 720, Seminar: Clinical Problems of Genetic Psychology. (1:1:0)
 - F. 552, (Soc-Psych) Personality: Culture and Society. (3:3:0)
- II. Psychodynamics of Behavior (10 hours)
 - A. 540, Abnormal Psychology. (3:3:2)
 - B. 550, Psychology of Personality. (3:3:0)
 - C. 651, Problems in Psychopathology. (2:2:0)
 - D. 675, Experimental Psychodynamics. (2:1:4)
- III. Diagnostic Methods (12 hours) Prerequisite: Psychology 378.
 - A. 640, Individual Test Practice. (5:1:8)
 - B. 740, Introduction to Projective Techniques. (2:2:0)
 - C. 741, Rorschach Test Practice. (3:1:8)
 - D. 743, Practicum: Diagnostic Testing. (2:0:6)
- IV. Psychotherapy (12 hours) Prerequisite: Psychology 540.
 - A. 680, Introduction to Psychotherapy. (3:3:0)
 - B. 780, Individual Psychotherapy: Practicum. (3:1:8)
 - C. 781, Individual Psychotherapy: Practicum. (3:1:8)
 - D. 782, Group Therapy: Theory and Practice. (3:1:8)

or

783, Play Therapy: Theory and Practice. (3:3:3)
- V. Research Methods (9 hours)
 - A. 574, Advanced Experimental Psychology. (2:1:5)
 - B. 670, Advanced Statistics I. (3:3:0)
 - C. 671, Advanced Statistics II. (3:3:0)
 - D. 690, Seminar: Research Problems. (1:1:0)
 - E. 799, Dissertation. (Arr.)

Doctor of Philosophy Degree with a Major in General Psychology

A program for the Ph.D. in general psychology with some concentration in the principle branches of the field is also offered by the Psychology Department. The purpose of this program is to furnish advanced training to students who are primarily interested in research, university teaching, and specialized applications of psychology in areas other than the clinical field.

The candidates for this degree will choose a field of concentration from not more than two of the following branches: experimental psychology, physiological and comparative psychology, statistical analysis, psychological measurements, individual differences, learning, social psychology, personality, and developmental psychology.

**Courses Required for a Doctor of Philosophy Degree with a Major
in General Psychology**

- I. General Psychology (17 hours)
 - A. 552, (Soc-Psych) Personality: Culture and Society. (3:3:0)
 - B. 560, Psychology of Learning. (3:3:0)

- C. 585, Physiological Psychology. (3:3:0)
- D. 610, Systematic Psychology I: History and Contemporary Thought. (4:4:0)
- E. 611, Systematic Psychology II: Psychological Theory. (4:4:0)
- II. Psychodynamics of Behavior (10 hours)
 - A. 540, Abnormal Psychology. (3:3:2)
 - B. 550, Psychology of Personality. (3:3:0)
 - C. 555, (Soc-Psych) Group Dynamics. (2:2:0)
 - D. 675, Experimental Psychodynamics. (2:1:4)
- III. Research Methods (9 hours)
 - A. 574, Advanced Experimental Psychology. (2:1:5)
 - B. 670, Advanced Statistics I. (3:3:0)
 - C. 671, Advanced Statistics II. (3:3:0)
 - D. 690, Seminar: Research Problems. (1:1:0)
 - E. 799, Dissertation. (Arr.)
- IV. Approximately 30 additional hours chosen by the chairman of the student's committee to fit the particular specialization elected by the student. This list must be approved by the department staff upon the recommendation of the chairman of the committee.

Advanced Undergraduate or Graduate Courses

- 510 (510). **The Psychology of Aesthetics.** (2:2:0) S. Prerequisite: Psychology 111. Taylor
The arts of perceptual stimuli; the nature of artistic creativity; psychological symbolism expressed in the arts; the artist as a person.
- 540 (540, 440). **Abnormal Psychology.** (3:3:2) S.Su. Prerequisites: Psychology 111 and consent of instructor. Allen
Dynamics of maladjustment; implications for normal behavior; review of major and minor psychological disorders; modern therapeutic procedures; field work at Utah State Hospital.
- 550 (550). **Psychology of Personality.** (3:3:0) F.Su. Prerequisites: Psychology 111 and five additional hours in psychology. Moffitt
Major theories of personality; problems of traits, types, and organization; interaction of biological, psychological, and cultural determinants; measurement of personality.
- 552 (552). **(Soc-Psych) Personality: Culture and Society.** (3:3:0) S. Prerequisite: 12 hours of psychology or sociology and anthropology. Hardy
May be used for credit either in anthropology, psychology or sociology, but not in more than one. Study of the role of culture and society in the formation and functioning of personality.
- 555 (555). **(Soc-Psych) Group Dynamics.** (2:2:0) F. Prerequisite: Sociology-Psychology 350. Hardy
May be used for credit either in psychology or sociology, but not in both. Research and theories in group dynamics.
- 560 (560). **Psychology of Learning.** (3:3:0) S. Prerequisites: Psychology 111, and 5 additional hours in psychology. Allen, Taylor
Current theories of learning; persistent problems; representative experiments; types of learning; principles of effective learning; implications for clinical, educational, and social fields.
- 574 (574). **Advanced Experimental Psychology.** (2:1:5) S. Prerequisites: Psychology 111, 374, or equivalent. Allen
Principles of instrumentation; varieties of experimental designs; nature of experimental controls. Gives experience in planning, conducting and reporting original exploratory experiments.
- 580 (580). **Comparative Psychology.** (3:3:0) F. Prerequisite: Psychology 111. Staff
Survey of methods and results of research on animal learning, innate

behavior, motivation, individual differences, social behavior, abnormal behavior; correlation of structure with function.

- 585 (585). **Advanced Physiological Psychology.** (3:3:0) S. Prerequisite: Psychology 111. Staff

Critical study of physiological processes and psychological functions; physiological mechanisms underlying behavioral processes, including sensation, emotion, sleep and activity, motivation, and learning.

- 598 (598). **Independent Research.** (1-3:0:2-6) F.S. Staff

Graduate Courses

- 606 (New). **Psychology of Music.** (3:3:0) S. Prerequisites: Psychology 111 and Physics 111 or equivalent. Taylor

Designed for and required of graduate students majoring in music education. Critical examination of psychophysical functions in music; measurement of auditory thresholds; problem of absolute pitch; time judgments as related to music; nature and measurements of sensory-motor skills; measurement of musical aptitude; personality and emotional factors as related to musical production and appreciation; recent applications of music in therapy; musical creativity as a psychological problem; representative research problems, methods, and results.

- 610 (610, 612). **Systematic Psychology I: History and Contemporary Thought.** (4:4:0) F. Prerequisite: undergraduate core courses. Howell

- 611 (611, 612). **Systematic Psychology II: Psychological Theory.** (4:4:0) S. Prerequisite: Psychology 610. Taylor

- 626 (626). **Mental Deficiency.** (2:2:0) F. Prerequisite: Psychology 378 or equivalent. Allen

- 627 (627). **Gifted Children.** (1:1:0) S. Prerequisite: Psychology 378. Staff

- 628 (628). **Psychology of the Physically Handicapped.** (2:2:0) F. Prerequisite: Psychology 378. Taylor

- 640 (640, 641). **Individual Test Practice.** (5:1:8) S. Prerequisite: Psychology 378. Howell, Taylor

- 642 (642). **Special Clinical Testing.** (2:0:6) S. Prerequisite: Psychology 640. Howell, Taylor

- 651 (651). **Problems in Psychopathology.** (2:2:0) S. Prerequisites: Psychology 540 and consent of instructor. Allen, Howell

- 655 (655). **Psychosomatic Problems.** (2:2:0) F. Prerequisites: Psychology 540 and consent of instructor. Trunnell

- 670 (670, 671). **Advanced Statistics I.** (3:3:0) F. Prerequisite: Psychology 370. Howell, Moffitt

- 671 (671, 672). **Advanced Statistics II.** (3:3:0) S. Prerequisite: Psychology 670. Howell, Moffitt

- 675 (675). **Experimental Psychodynamics.** (2:1:4) F. Prerequisites: undergraduate core courses and consent of instructor. Staff

- 680 (680). **Introduction to Psychotherapy.** (3:3:0) S. Prerequisites: undergraduate core courses and consent of instructor. Robinson

- 690 (690). **Seminar: Research Problems.** (1:1:0) F. Staff

- 695 (695). **Independent Readings.** (1-2:Arr.:Arr.) F.S.Su. Staff

- 699 (699). **Thesis for Master's Degree.** (1-4:Arr.:Arr.) F.S.Su. Staff

- 720 (720). **Seminar: Clinical Problems of Genetic Psychology.** (1:1:0) S. Prerequisite: consent of instructor. Howell, Taylor

- 740 (740). **Introduction to Projective Techniques.** (2:2:0) F. Prerequisite: Psychology 640. Taylor

- 741 (741). **Rorschach Test Practice.** (3:1:8) S. Prerequisite: Psychology 740. Howell, Robinson, Taylor

- 743 (743). **Practicum: Diagnostic Testing.** (2:0:6) S. Prerequisite: Psychology 741. Staff

- 747 (747). **Internship in Clinical Testing.** (2-4:1:5-11) F.S.Su. Prerequisite: Psychology 743. Staff

- 748 (748). **Internship in Clinical Testing.** (2-4:1:5-11) F.S.Su. Prerequisite: Psychology 747. Staff
Continuation of Psychology 747.
- 750 (750). **Seminar: Personality.** (1:1:0) F. Prerequisite: consent of instructor. Staff
- 760 (760). **Seminar: Learning.** (1:1:0) S. Prerequisite: consent of instructor. Staff
- 780 (780). **Individual Psychotherapy: Practicum.** (3:1:8) F.Su. Prerequisite: Psychology 680. Staff
- 781 (781). **Individual Psychotherapy: Practicum.** (3:1:8) S. Staff
Continuation of Psychology 780.
- 782 (782). **Group Therapy: Theory and Practice.** (3:1:8) S. Prerequisite: Psych. 680. Staff
- 783 (783). **Play Therapy: Theory and Practice.** (3:3:3) S. Prerequisites: undergraduate core courses and consent of instructor. Staff
- 792 (New). **Seminar: Social Psychology.** (2:2:0) S. Prerequisite: consent of instructor, Sociology 350 or Psychology 350. Staff
- 799 (799). **Ph.D. Dissertation.** (Arr.) F.S.Su. Staff

Recreation

Professors: I. Heaton (chairman, 236 SFH), Hart, Hartvigsen.

Assistant Professors: A. Heaton, Watters.

Requirements

An undergraduate major or equivalent in the field and acceptance by the department chairman is necessary for admission.

The basic requirements for the master's degree in recreation are the same as the general Graduate School requirements. In addition, the college will administer an oral examination to each student early in the first semester. The purpose of the examination is to give guidance in the selection of courses and studies leading to the master's degree. Recommended courses will be set up after consultation with the college graduate chairman and the major chairman.

Advanced Undergraduate or Graduate Courses

- 502 (502). **Camping Education.** (2:2:0) Su. Staff
- 503 (503). **Administration of School and Community Camps.** (2:2:0) S. I. Heaton

Objectives and problems involved in establishing community and school camps. Best practices dealing with location, safety, health, and program of activity are thoroughly analyzed.

- 505 (331, 505). **Administration of Community Recreation.** (3:3:0) S.Su. I. Heaton

Problems peculiar to the organization and administration of a community recreation program including objectives, legal aspects, facilities, personnel, activities, budgeting, and public relations.

- 579 (579). **Directed Leadership in Recreation.** (2-6:1:6-18) F.S.Su. Prerequisite: consent of department chairman. I. Heaton

Supervised experience in public and private recreation programs.

- 583 (683). **Workshop in Recreation Dance.** (2:2:0) S.Su. A. Heaton

Graduate Courses

- 607 (607). **The Conduct of Playgrounds.** (2:2:0) S.Su. A. Heaton
- 609 (609). **The Recreation Program.** (2:2:0) F.Su. I. Heaton
- 694 (694). **Seminar in Readings.** (2:2:0) F.S.Su. I. Heaton
- 696 (696). **Seminar in Problems in Recreation.** (1:1:0) S. I. Heaton

- 698 (698). Field Projects. (1-4:2-5:0) F.S.Su. I. Heaton
 699 (699). Thesis for Master's Degree. (1-4:1-5:0) F.S.Su. I. Heaton

These courses also count in Recreation:

- Health Education 696 (696). Seminar in Problems. (1:1:0)
 Instruction 624 (624, 633). Advanced Arts and Crafts for Elementary Teachers. (2:2:1)
 Instruction 626 (626). Arts and Crafts for the Handicapped. (2:2:1)
 Instruction 663 (663). Directing Out-of-Class Activities in the Secondary Schools. (2:2:0)
 Physical Education 514 (314, 604). Organization and Administration of Intramural Sports. (2:2:0)
 Physical Education 571 (571). Teaching Progression in Team Sports—Men. (2:1:2)
 Physical Education 572 (572). Teaching Progression in Team Sports—Women. (2:2:2)
 Physical Education 602 (602). Seminar in Administration. (2:2:0)
 Physical Education 603 (603). Planning Facilities. (2:2:0)
 Physical Education 692 (692). Research Methods in Physical Education. (3:3:0)
 Physical Education 696 (696). Seminar in Problems. (1:1:0)
 Political Science 535 (335, 635). Municipal Government and Administration. (3:3:0)
 Sociology 551 (551). Sociology of Recreation. (2:2:0)

Religious Education

Professors: Belnap (chairman, 112 S), Berrett.

Assistant Professors: Clark, Pearson, Rasmussen, Ricks.

Requirements

The Department of Religious Education offers training leading to the Master of Religious Education degree. A student must have adequate preparation on the undergraduate level before beginning work leading to this degree. The admissions committee of the graduate faculty of religion will determine if the student is properly prepared.

Each graduate student must fill all the general regulations and requirements for advanced degrees as outlined by the Graduate School. The responsibility of knowing and fulfilling these regulations and requirements rests with the student.

A statement of detailed requirements and procedures of the graduate program in religion may be obtained upon request from the dean of the College of Religious Instruction.

Master's Degree

Before a student is admitted on a degree-seeking basis, the admissions committee of the graduate faculty of religion will carefully study and evaluate his preparation and fitness for a graduate program. After acceptance, the student must select his advisory committee in consultation with the admissions committee, and must acquire at least 15 semester hours of formal course or seminar work in his major field and 10 semester hours of formal course or seminar work in his minor field; write an acceptable thesis embodying the results of research under faculty supervision; and successfully pass an oral examination.

Course Work

The student must complete 30 semester hours of graduate credit, not includ-

ing thesis credit. Majors in the field of religious education must fill the following requirements:

One hour from the following courses:

Religious Education 572 (1), 573 (1), 574 (1), (Theology).

The following course:

Religious Education 670 (2), (Survey of Religious Education).

Two hours from the following courses:

Religious Education 570 (2), 571 (2), 673 (2), 674 (2), (Methods).

Two hours from the following courses:

Religious Education 671 (2), 672 (2), 675 (2), 676 (2), (Curriculum).

The following courses:

Religious Education 678 (2), 679 (2). Competence in the subject-matter of these two courses is required. The candidate must satisfy the department that he is prepared before he may register for either of these courses.

One course from the following:

Educational Research and Services 620 (3), (Introduction to Counseling).

History and Philosophy of Religion 681 (2), (Philosophical Analysis).

History and Philosophy of Religion 683 (2), (Philosophy of Religion).

The student may obtain 10 credit hours in the minor field of his choice if he is a certified teacher. If he is not certified, the minor must be taken in education. The remaining hours of credit required may be taken to suit the needs of the particular student.

Minor in Religious Education

The master's candidate for a minor in the field of religious education must fill the following requirements:

1. Advisory Committee Representative

The student should nominate a member of the faculty of the College of Religious Instruction to represent his minor field.

2. Course Work

The student must complete 10 hours of course work as follows:

Four hours from the following courses:

Religious Education 570 (2), 571 (2), 572 (1), 573 (1), 574 (1), 671 (2), 672 (2), 673 (2), 674 (2), 676 (2).

The following courses:

Religious Education 678 (2), 679 (2).

Two hours from the following courses:

Religious Education 670 (2), Educational Research and Services 620 (3), History and Philosophy of Religion 681 (2), 683 (2).

Advanced Undergraduate or Graduate Courses

572, 573, 574 (534, 535, 536). Lectures in Theology. (1:4:0 ea.) Su. Berrett, Staff

Graduate Courses

670 (601). Survey of Religious Education. (2:2:0) F.S. (2:5:0) Su. Belnap
 671, 672 (605, 606). Teaching Religion in Secondary Schools. (2:5:0 ea.) Su. Berrett, Staff
 Not offered this year.
 673, 674 (607, 608). Methods of Teaching Religion in College. (2:5:0 ea.) Su. Berrett, Staff
 Not offered this year.
 675, 676 (609, 610). Teaching Religion in Colleges. (2:5:0 ea.) Su. Not offered
 this year. Berrett, Staff
 677 (611). Problems of Teaching Religion. (1:3:0) Su. Not offered this year. Staff
 678 (621). Teaching the Old and New Testament. (2:2:0) F.S. (2:5:0) Su. Staff

- 679 (622). Teaching L.D.S. Church History and the Book of Mormon. (2:2:0) S. (2:5:0) Su. Staff
 680 (New). Philosophic Problems and Religious Instruction. (1:3:0) Su. Madsen, Riddle, Yarn
 699 (New). Thesis for Master's Degree. (1-4:1-4:0) F.S.Su. Staff

These courses also count in Religious Education:

- E.R.S. 620 (620). Introduction to Counseling Theory and Practice. (3:3:0)
 H.P.R. 681 (651). Seminar: Philosophical Analysis. (2:2:0)
 H.P.R. 683 (653). Seminar: Philosophy of Religion. (2:2:0)

Sociology and Anthropology

Professors: Bradford (chairman, 1216A SFLC), Ballif, Symons.

Associate Professors: Christiansen, Dyer, Empey, Larsen, Smith, Vernon.

Assistant Professors: Payne, Peterson, Sorenson.

Requirements

The Department of Sociology and Anthropology offers training for the master's degree and the Doctor of Philosophy degree. It is expected that graduate students will acquaint themselves with all the general regulations for advanced degrees as outlined by the Graduate School.

Master's Degree

The requirements for the master's degree in sociology include, of course, the general requirements of the Graduate School.

Admission to the master's degree program requires a minimum of 15 semester hours in sociology or its equivalent, including introductory sociology, sociological theory, methods of research, and statistics, and the passing of a written **screening examination** involving the following fields: sociological theory, statistics, research methods, and social organization-disorganization.

The following is the required core curriculum: Sociology 111, 112, 320, 397, 491, 504, 505. Courses comprising the remainder of the program are selected by the student in consultation with the advisory committee.

The student should note that the minor for a master's degree must be taken outside the Department of Sociology.

Doctor of Philosophy Degree

Students intending to enter the doctoral program in sociology should obtain from the department chairman a complete statement of rules and procedures. In addition to the general requirements of the Graduate School, a student working toward a doctorate in sociology must fulfill the following specific requirements:

1. Requirements for Admission. For admission to the doctoral program in sociology, the student must furnish evidence of having received a master's degree or its equivalent in sociology from an accredited university. In addition, the student must pass **screening examinations** in the following areas: sociological theory, statistics, research methods, and social disorganization. The department may then prescribe remedial work or other requirements as a condition for admission. The student must complete such work with a grade of "B" or better.

2. Student's Advisory Committee. The members of the advisory committee are nominated by the student in consultation with the department chairman and with the approval of the dean of the Graduate School. Four men from the department plus one from outside the department comprise the advisory committee. If the student decides to have one minor outside the department, the fifth member must be from that department. If the student has both minors within the department, the fifth member is selected from a department decided upon by the other four committee members. The chairman of the committee must be a

representative of the department and must be competent in the field in which the dissertation is to be written.

3. Major and Minor Fields. The student must have two major fields, one of which must be research methods. A major field is a field of study in which the student specializes both in respect to teaching and research. It is presumably the field in which the dissertation is to be written and upon which the professional career is to be based.

The student must have two minor fields, one of which may be selected from another department in lieu of one of the minor fields in sociology. A minor field is construed as a field of study in which the student may teach and/or conduct research creditably. It is not the substantive field, however, in which his competence is most highly developed.

The major fields and at least one of the minor fields must be selected from the following fields of sociology:

Cultural Anthropology
Demography and Ecology
Marriage and the Family
Research Methods

Social Disorganization
Social Organization
Social Psychology
Sociological Theory

A student may elect to have a minor in a field not listed above. To do so he must submit a proposed program of study to his advisory committee at least twelve months in advance of the comprehensive examinations. This committee, with the approval of the members of the department, may authorize an alternate minor field in sociology.

4. Comprehensive Examinations. The student must pass comprehensive examinations after the completion of prescribed course work and at least one year prior to the granting of the degree. Unless a minor is selected in another department, the examinations are in four of the above fields of sociology, two of which must be (a) sociological theory and (b) research methods.

Requirements for a Minor in Sociology

A student working toward a master's degree completes the departmental requirements for a minor in sociology by satisfactorily completing Sociology 505 plus graduate semester hours in areas related to his major specialization in his field as approved by his advisory committee, a member of which is from the Department of Sociology and Anthropology.

A student working toward the doctoral degree with a major in another department and with a minor in sociology, takes a preliminary screening examination, after which a committee member from the Department of Sociology and Anthropology, with the approval of the other members of the department, outlines a program in accordance with the needs of the student.

Advanced Undergraduate or Graduate Courses

504 (503, 504). Development of Sociological Theory. (3:3:0) F. Prerequisite: Sociology 111. Bradford, Dyer, Smith

Analyzes the development of prominent sociological theories and the contributions of outstanding theorists.

505 (505). Sociological Principles. (3:3:0) S. Prerequisite: Sociology 111.

Bradford, Dyer

Analysis of generalizations derived by sociology concerning how social interaction, groups, institutions, roles, statuses, and culture affect human behavior.

512 (512). Sociology of Education. (2:2:0) S.

Smith

Analyzes principles of sociology of education and their implication for theory and practice of school administration, curricula, and methods of instruction.

516 (516). Sociology of Religion. (2:2:0) F.

Ballif, Empey, Smith, Vernon

Analyzes influences of social factors in development of various religious systems.

- 524 (524). Advanced Social Statistics.** (3:3:0) F. Prerequisite: Sociology 111. Staff
Advanced course designed for those who intend to do research or continue in graduate work.
- 542 (542). Social Movements.** (2:2:0) S. Ballif, Payne, Symons
Discusses social aspects of various movements from Adam Smith to John Dewey with special emphasis upon social reform movements in the United States.
- 543 (543). Social Legislation.** (2:2:0) S. Ballif
Study of basic problems and techniques of social legislation. Analyzes various systems now in operation.
- 551 (551). Sociology of Recreation.** (2:2:0) S.Su. Ballif, Payne
Treats relations of recreational interests to growth, group behavior, and social maladjustments. Emphasizes basic theories of recreative activities.
- 552 (552). (Soc-Psych) Personality: Culture and Society.** (3:3:0) F. Prerequisite: Sociology 111 or Psychology 111. Christiansen, Dyer, Hardy, Moffitt
- 555 (555). (Soc-Psych) Group Dynamics.** (2:2:0) S. Prerequisite: Sociology 350. Dyer, Hardy
Analyzes research and theories of group dynamics.
- 560 (560). Family and Kinship.** (2:2:0) S. Bradford, Empey
Emphasizes the family in several different societies and problems created by various family systems.
- 570 (570). Class, Status, and Power.** (2:2:0) F. Prerequisite: Sociology 111. Empey, Peterson
Analyzes the major status and class systems in various societies. Also discusses power relations in such systems.
- 580 (580). Social Relations in Medical and Health Organizations.** (2:2:0) S. Dyer, Peterson
Analyzes the structure of medical and health organizations. Designed for pre-medical, pre-dental, and health education students.
- 591 (583). Seminar in Crime Causation and Treatment.** (2:2:0) S. Prerequisites: Sociology 111, 380. Empey, Smith, Symons
Considers the major causes of crime and analyzes prevalent theory and techniques of treatment of criminals.
- 595 (536). Directed Readings.** (1-3:0:2-6) F.S.Su. Staff
The student is given readings in special areas.
- 596 (New). Directed Readings.** (1-3:0:2-6) F.S.Su. Staff
The student is given directed readings in special areas.
- 597 (520, 521). Advanced Research Methods.** (3:3:0) S. Prerequisite: Sociology 497. Staff
Analyzes methods used in investigation of sociological data. Field projects give the student actual experience in research.
- Graduate Courses**
- 686 (686). Problems in Race Relations.** (2:2:0) F. Ballif, Jensen
Considers significant problems of a specialized nature in the field of race relations.
- 699 (699). Thesis for Master's Degree.** (1-4:Arr.:Arr.) F.S.Su. Staff
- 701 (New). Advanced Statistical Methods.** (2:2:0) S. Prerequisites: Sociology 320, 524. Christiansen, Peterson
Consideration of advanced statistical techniques such as scalogram analysis, factor analysis, and latent structure analysis.
- 791 (New). Seminar: Social Organization.** (2:2:0) F. Prerequisites: Sociology 111, 505. Staff
Comprehensive examination of major theories of organization with emphasis upon theory construction.
- 792 (New). Seminar: Social Psychology.** (2:2:0) S. Prerequisites: consent of instructor; Sociology 350. Staff
Designed to give advance work to graduate students. Gives special emphasis to group processes and socialization.

796	(796). Special Research Problems. (1-3:0:2-6) F.S.Su.	Staff
797	(798). Special Research Problems. (1-3:0:2-6) F.S.Su.	Staff
799	(New). Dissertation for Ph.D. (Arr.) F.S.Su.	Staff

Speech and Dramatic Arts

Professors: Hansen (chairman, 124 SpC), Mitchell, Morley.

Associate Professors: Bateman, Gledhill, Mecham, Woodbury.

Assistant Professors: Clinger, Jex.

Instructors: Rich, Richardson.

Fields

Public Speaking, Radio and Television, Speech Pathology,
Interpretation, Theatre and Dramatic Arts

Requirements

For full graduate standing as a major in public speaking, interpretation, radio and television, theatre and dramatic arts, or speech pathology, the student must present as background Speech 101, 121, 122, 123, 241, and 460, or their equivalents, plus 12 hours of electives approved by the chairman of the department.

During the first quarter of graduate study, candidates for the master's degree must pass a written test to demonstrate proficiency in background in the area in which they elect to major.

Following are divisions of courses in speech and dramatic arts:

Public Speaking: Speech 524, 525, 621, 622, 623, 643, 692, 699, 401, and 402 may be counted in this field in harmony with general regulations of the Graduate School.

Radio and Television: Speech 603, 605, 643, 690, 691, 699; Journalism 671, 672.

Speech Pathology: Speech 541, 542, 545, 546, 547, 560, 640, 641, 643, 645, 646, 647, 648, 656, 693, 695, 699; Psychology 336, 340, 540, 640, 680.

Interpretation: Speech 423, 527, 547, 643, 660, 662, 663, 667, 696, 699; English 355, 382, 541, 542, 543, 641, 682.

Theatre and Dramatic Arts: Speech 547, 570, 571, 572, 573, 577, 578, 643, 662, 664, 665, 667, 668, 671, 672, 673, 674, 675, 676, 678, 697, 699; English 541, 542, 543, 641, 682.

Advanced Undergraduate or Graduate Courses

- | | | |
|----------|--|------------|
| 524 | (524). High School Forensics and Programming. (1-2:1-2:1-6) S. | Bateman |
| 525 | (525). Debate Coaching. (1-2:1-2:0) F.S. | Richardson |
| | Designed for prospective debate coaches. Covers debate techniques and how they are taught. | |
| 527 | (527). Storytelling. (2:2:0) S. | Staff |
| | Art of storytelling. Especially valuable to teachers and youth leaders. | |
| 541 | (541). Stuttering. (1:1:0) F. | Morley |
| 542 | (542). Organic Speech Disorders. (2:2:0) S. | Mecham |
| 545 | (545). Public School Audiometry. (2:2:2) F.S. Prerequisite: Speech 473. | Weaver |
| 546 | (546). Anatomy of the Ear and Vocal Organs. (2:2:0) F. | Mecham |
| 547 | (547). Psychology of Speech. (2:2:0)* S. Prerequisite: Psychology 111. | Morley |
| 560 | (560). Clinical Audiology. (2:2:2) F.S. Prerequisite: Speech 473. | Staff |
| 561 | (New). Hearing Aids. (1:1:0) S. | Weaver |
| | Construction, use, and fitting of hearing aids. | |
| 570, 571 | (570, 571). Creative Dramatics. (2:2:1) F. | Mitchell |
| | Evolving dramas from the personal experiences and creativeness of participants. | |

- 572, 573 (572, 573). **Children's Theatre.** (2:2:1) S. Mitchell
Directing for audiences of children and youth. Participation in Youtheatre productions. Attendance at Monday night Mask Club recommended.
- 577 (577, 578). **Playwriting.** (1-3:1-3:0) F. Hansen, Mitchell
Advanced techniques and theories.
- 578 (578, 579). **Playwriting.** (1-3:1-3:0) S. Hansen, Mitchell
Advanced techniques and theories.

Graduate Courses

- 603 (603). **Radio and Television Projects.** (1-4:1-4:0) S. Staff
- 605 (605). **History of Radio and Television Programming.** (2:2:0) S. Staff
- 621 (621). **Ancient Rhetoric and Oratory.** (2:2:0) F. Bateman
- 622 (622). **History of British Public Speaking.** (2:2:0) S. Bateman
- 623 (623). **History of American Oratory and Public Address.** (2:2:0) F. Bateman
- 624 (New). **Contemporary Public Address.** (2:2:0) S. Bateman, Richardson
- 640 (640, 641). **Graduate Clinical Practice Speech and Hearing.** (1-2:1-2:0) F. Staff
Required of all graduate students in speech and hearing.
- 641 (641, 642). **Graduate Clinical Practice Speech and Hearing.** (1-2:1-2:0) S. Staff
Required of all graduate students in speech and hearing.
- 643 (643). **Methods and Problems of Research in Speech.** (2:2:0) F. Staff
Required of all graduate students.
- 645 (645). **Advanced Studies in Stuttering.** (2:2:0) S. Morley
- 646 (646). **Advanced Studies in Cleft Palate.** (2:2:0) F. Mecham
- 647 (647). **Advanced Studies in Cerebral Palsy.** (2:2:0) F. Mecham
- 648 (648). **Advanced Studies in Aphasia.** (2:2:0) S. Mecham
- 656 (656). **Special Projects in Speech Pathology.** (1-4:1-4:0) F.S. Staff
- 660 (660). **Theory of Interpretation.** (2:2:0) S. Gledhill, Woodbury
- 662 (662). **Regional Dialects.** (2:2:0) S. Clinger
- 663 (663). **Program Building and Lecture Recital.** (2:2:0) F. Gledhill, Mitchell
- 664 (664, 665). **History of Theatre I.** (3:3:0) F. Hansen
- 665 (665, 666). **History of Theatre II.** (3:3:0) S. Woodbury
- 667 (667). **History of Acting.** (2:2:0) F. Woodbury
- 668 (668). **Special Problems in Theatre History.** (1-3:1-3:0) F.S. Staff
- 670 (New). **Advanced Play Production—Technical.** (2:2:0) S. Staff
- 671 (671). **Experimental Theatre.** (2:2:0) F. Hansen
- 672 (672). **Problems of the Producing Director.** (2:2:0) F. Hansen
- 673 (673). **Advanced Play Production—Directing.** (2:2:0) S. Hansen
- 674 (674). **Projects in Theatre.** (1-4:1-4:0) F.S. Staff
- 675 (675, 676). **Stage Design.** (2:2:1) F. Staff
- 676 (676, 677). **Stage Design.** (2:2:1) S. Staff
- 678 (678). **Stage Lighting.** (1-2:1-2:0) F.S. Staff
- 690 (690). **Seminar in Mass Communication.** (1-3:1-3:0) F.S. Staff
- 691 (691). **Selected Readings in Radio and Television.** (1-3:1-3:0) F.S. Staff
- 692 (692). **Seminar in Public Speaking.** (1-3:1-3:0) F.S. Bateman
- 693 (693). **Special Studies in Speech Pathology.** (1-3:1-3:0) F.S. Staff
- 695 (695). **Seminar in Psychoacoustics of Speech and Hearing.** (1-3:1-3:0) F. Staff
S.
- 696 (696). **Seminar in Interpretation.** (1-3:1-3:0) F.S. Mitchell
- 697 (697). **Seminar in Arena Theatre.** (1-4:1-4:0) F.S. Hansen
- 699 (699). **Thesis for Master's Degree.** (1-4:Arr.:Arr.) F.S. Staff

Zoology and Entomology

Professors: Hayward (chairman, 263 B), V. M. Tanner.

Associate Professors: Allen, Beck, Chapman, W. W. Tanner.

Assistant Professors: Allred, Wood.

Requirements

Prospective graduate majors should consult the department prior to registration. After a student has been officially admitted to graduate study in the department the entrance committee shall direct his program of studies until he has selected an advisory committee and may make recommendations to the advisory committee regarding future course work.

A candidate for a master's degree in the department may select a major from the following fields: (1) natural history, (2) entomology, (3) morphology and experimental zoology. His minor may also be chosen from one of these three fields or from a closely related department approved by his advisory committee.

The research project on which his thesis is to be based may be selected from one of the following subdivisions: natural history (ichthyology, herpetology, ornithology, mammalogy, invertebrate zoology, parasitology, ecology); entomology (general entomology, medical entomology); and morphology and experimental zoology (comparative vertebrate anatomy, comparative invertebrate anatomy, general and comparative physiology, embryology, genetics.)

Advanced Undergraduate or Graduate Courses

- 510 (510). Zoological Literature.** (2:1:2) F. Wood
Designed to acquaint the student with the literature of zoology for research and thesis writing.
- 531 (631). Insect Physiology.** (2:1:2) F. V. Tanner
A study of the physiological processes of insects.
- 533 (533). Field Entomology.** (2:0:4) F.S. Prerequisite: consent of instructor. Beck, Wood
Projects in insect biology or ecology are assigned to give field experience in entomology that will prepare the student for research.
- 538 (538). Immature Insects.** (2:0:4) S. Prerequisite: Zoology 230. V. Tanner, Wood
The identification of eggs, nymphs, larval and pupae of local insects.
- 540 (540). Aquatic Zoology.** (2:0:4) S. Prerequisite: consent of instructor. Staff
A study of the organisms living in freshwater habitats.
- 551 (550, 551). Animal Ecology.** (4:2:4) F. Prerequisites: Zoology 212, 213, 230, Botany 110. Hayward
The principles of ecology as applied particularly to animals in natural communities. Saturday field trips.
- 555 (655). Principles of Zoogeography.** (2:2:0) S. V. Tanner
A study of factors that have influenced the present distribution of land and fresh water animals.
- 561 (New). Advanced Vertebrate Anatomy.** (3:1:4) F. Chapman, W. Tanner
Detailed studies of the anatomy of the vertebrates including man.
- 573 (573). Experimental Embryology.** (2:1:3) Arr. Offered alternate years. Allen
Prerequisite: Zoology 373.
Concepts and techniques related to normal development and its modifications.
- 576 (576). Advanced Genetics.** (2:2:0) F. Offered alternate years. Prerequisite: Zoology or Botany 376.
A review of modern concepts of genetic mechanisms.
- 578 (578). Radiation Biology.** (2:2:0) S. Offered alternate years. Prerequisites: Allen
Physics 202; Chemistry 112; Zoology 365.
Elementary theory of radiations, interaction with matter, biological effects, and health physics.

- 579 (579). **Radiation Biology Laboratory.** (1:0:3) S. Offered alternate years. Allen
Prerequisite: concurrent registration in Zoology 578.
- 591 (591). **Special Problems in Zoology.** (1-2:Arr.:Arr.) F.S.Su. Staff
Open to students prepared to do advanced independent work in zoology.

Graduate Courses

- 610 (610). **Systematic Zoology.** (2:1:2) F. V. Tanner
Principles of taxonomy, morphology, nomenclature, genetics, ecology, and distribution as they affect animal populations in nature.
- 612 (512, 524). **Advanced Invertebrate Zoology.** (2-4:Arr.:Arr.) F.S.Su. Allred, Beck
Systematic course work in the morphology, anatomy, taxonomy, ecology, and natural history of selected groups of invertebrates.
- 625 (625, 628). **Advanced Medical Arthropodology.** (2-4:Arr.:Arr.) F.S.Su. Allred, Beck
Designed to acquaint the student with the identification, distribution, seasonal occurrence and host relationships of medically important arthropods.
- 639 (639). **History of Entomology.** (1:1:0) F. V. Tanner
The development of entomology in the United States.
- 643 (643). **Advanced Ichthyology.** (2:1:2) F. V. Tanner
Advanced studies in the fishes of the Great Basin area.
- 645 (645). **Advanced Herpetology.** (2:1:2) S. W. Tanner
Anatomy, life history, and taxonomy of reptiles and amphibians are studied.
- 662 (662, 663). **Advanced Physiology.** (2-4:Arr.:Arr.) S. Chapman
Advanced studies in animal processes.
- 673 (673). **Advanced Embryology.** (2:2:0) F. Offered alternate years. Allen
A review of modern concepts of the mechanisms of development.
- 691 (690, 691, 692). **Research.** (1-4:Arr.:Arr.) F.S.Su. Staff
Students may work on research problems under the direction of the several members of the departmental staff.
- 696, 697 (696, 697). **Graduate Seminar.** (1:1:0 ea.) F.S. Staff
A review of current trends and concepts in zoology as they relate to the graduate student.
- 699 (699). **Thesis for Master's Degree.** (2-4:Arr.:Arr.) F.S.Su. Staff

Index

Accounting	37	Fellowships	27
Administration and Faculty	3	Food and Nutrition	68
Administration and Organization	17	Food Service	35
Agricultural Economics	38	Foreign Student Adviser	32
Agronomy	38	Geography	69
Animal Husbandry	39	Geology	71
Anthropology	108	Graduate Council	3
Apartments and Homes	34	Graduate School, Admission to	20
Archaeology	40	Health Education	73
Art	42	History	74
Assistantships	27	History and Philosophy of Religion	76
Bacteriology	43	Housing, Student	33
Bible and Modern Scripture	44	Human Development and Family Relationships	78
Biblical Languages	46	Instruction	80
Botany	47	Journalism	83
Business Education	49	Languages	84
Business Management	50	Library Facilities	28
Calendar of Events	2	Library Science	87
Chemistry	52	Master's Degree, Procedure for	20
Civil Engineering Science	55	Mathematics	88
Counseling Service	31	Mechanical Engineering Science	88
Dean of Students	31	Music	90
Degrees, General Requirements	20	Physical Education	94
Degrees, Special Requirements for the Doctor of Education	25	Physics	96
Degrees, Special Requirements for the Doctor of Philosophy	24	Political Science	99
Degrees, Special Requirements for Master's	22	Psychology	101
Economics	56	Recreation	105
Educational Administration	57	Religious Education	106
Educational Philosophy and Programs ..	60	Rentals	33
Educational Research and Services	60	Requirements, General	20
Electrical Engineering Science	64	Residential Housing	35
Employment, Student	32	Scholarships	27
English	67	Sociology	108
Entomology	113	Speech and Dramatic Arts	111
Faculty	4	Student Personnel Services	31
Fees, General	29	Summer Sessions	28
		Trustees, Board of	3
		Zoology	113

